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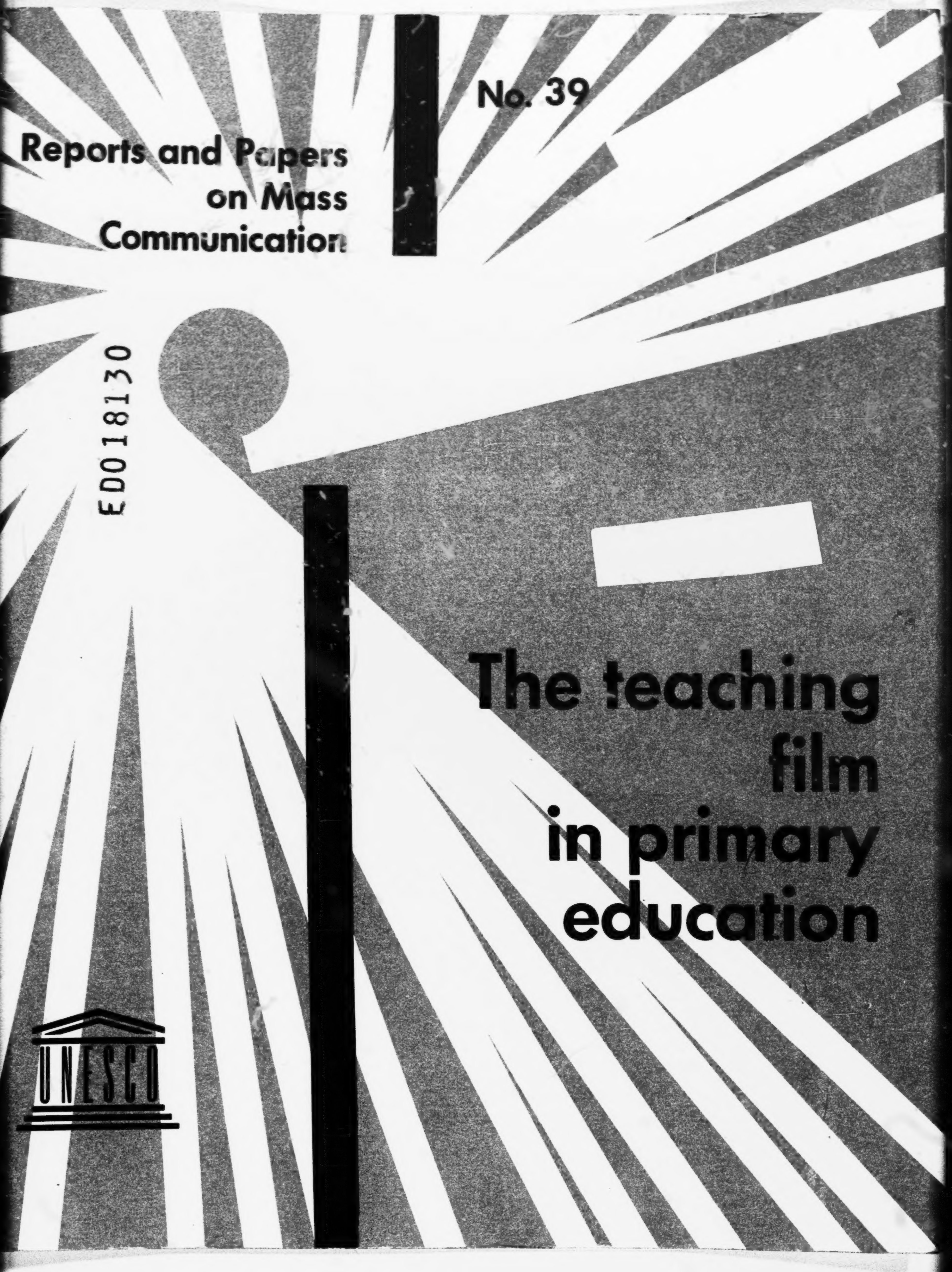

The teaching film in primary education

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The teaching film in primary education

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PREFACE

This study in the series "Reports and Papers on Mass Communication" is an attempt to carry out a stock-taking of experience in a limited but highly important sector of the use of films in the service of education.

While it would be difficult to say exactly when the motion picture was first used as an aid to teaching in primary education, this must have happened at least fifty years ago. It is therefore appropriate now to try to reach some estimate of what, taking into account the inevitable failures as well as the successes, is the present position of achievement. Accordingly, the International Council for Educational Films was commissioned to secure estimates on this subject from several educationists, film-makers and other practitioners of recognized ability and experience. Though the opinions of the individual contributors differ somewhat on minor aspects, one is struck by the unanimity expressed on major principles, indicating that while pedagogical practice in this domain may still demand some verification of its results in certain cases, it has largely progressed beyond the stage of isolated testing and of experimentation by trial and error. There has been built up a body of general experience which can be followed with confidence. It should be noted, however, that opinions expressed in signed articles are those of the authors and do not necessarily reflect the views of Unesco.

Since the scope of this study was limited to primary education, the contributors were asked to confine themselves to essential pedagogical disciplines - those in which the use of motion pictures has been established for a long time - and, furthermore, to avoid dealing with the teaching role, important though it may be, which the film can play outside the classroom. Inevitably, perhaps, the background of this symposium is largely European. It is hoped that the present assessment, despite its limitations, will not only provide useful information but will also act as a stimulus in promoting still further the use of the film as an educational auxiliary, particularly in those parts of the world where so many children still lack schooling.

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INTRODUCTION

by R. Lefranc (France)

Without wishing to anticipate the conclusions of the various articles, it will be useful to begin this study by attempting to see what is the existing situation of the film in primary education, what place it should take in primary teaching, what are the prevailing systems of production and use, and the respective rôles of films and other audio-visual media. In so doing, I should like not merely to consider the present position, but to outline future developments in this field so far as our present educational and technical knowledge allows. These questions will, of course, be considered without reference to any particular national context. It will be for teachers themselves to adapt what is said about teaching to the national or local conditions in which they work and with which only they can be thoroughly familiar.

THE PLACE OF THE MOTION PICTURE IN PRIMARY EDUCATION

There can and should be a place for the film at every stage of the teaching process. This principle must be vigorously reasserted, for, even among those who are in favour of using films in school work, there are many teachers who would restrict the film's function to the "association" stage alone, in Decroly's sense of the term. This means curiously limiting the problem and deliberately depriving ourselves of an auxiliary which can be invaluable in many fields.

In the first place, the film can be a remarkable aid to motivation, probably more potent than any other audio-visual medium. The primary school pupil is not spontaneously interested in arithmetic, grammar, history or any other subject, but he is exceedingly receptive and needs only to be convinced. Yet it is still necessary to interest the child in the teaching by means well suited for the purpose and exercising a lasting influence. And it is with regard to motivation that the teacher most often feels himself helpless. It is difficult for him to know the various interests of the individuals in his class; it is hard for him to put himself in the children's place; he is loth to give his teaching the "dramatic" treatment which is needed because he fears that his good intentions may make him seem a clown to his pupils.

While the film will, in all likelihood, be even les well adapted to the individual interests of the children, it will supply the dramatic argument, the motivating web on which the teacher can weave and elaborate, trying at the same time to adapt it to a group that he alone knows well. In this way, the film can help in various ways in awakening the children's interest.

First of all, the introduction of a film into a lesson changes the tempo in a class too much accustomed to the standard teacher-pupils dialogue. A teacher who knows how to use films can very well appreciate the most propitious time for doing so, the moment at which he should withdraw into the background, though still remaining in control of the lesson. Pupils who are tired of having the teacher always "in the centre of the stage", welcome this break in the school routine and the change from "listening" to "screening" with interest. Their attention is caught and held for some time at least, almost automatically. Many psychologists have attempted to analyse the reasons for this state of affairs and there is no need to do so here. It will be sufficient to refer the reader to that part of this study which deals with questions of educational psychology and to mention only a few of the factors in this situation: the darkness prevents the child from being distracted by any competing attraction inside or outside the classroom and surrounds him with an atmosphere conducive to solitary observation; his change of posture and more relaxed attitude help to create a climate propitious for learning something new; the child is in a state of increased receptivity; the screen attracts and focuses his gaze.

Once the showing has begun, a carefully-made film adds to these extrinsic motivation factors the assets of sound intrinsic motivation. The film is, in fact, one of the best instruments in this field as it "speaks the children's own language". By this I mean that children often respond better to affective stimuli if these are transmitted through the picture language with which they are familiar - and which, incidentally, has sometimes been criticized for having too much "emotional content". Whereas the teacher, using only his natural resources, has great difficulty in developing the motivation factors required in a teaching situation, the film, under his control, is an invaluable adjuvant by which the fundamental incentives operating on the child's mind and heart can be brought into play. It is also an incomparable stimulus to the imagination. The imaginative capacity of many children has been greatly overestimated, at least if one is to judge by their written or oral efforts or by their drawings. When pupils are asked to give free rein to their imagination in class work, the poor results obtained often cause surprise. On the other hand, if some nourishment in film form is given, a wealth of images is produced, often taking forms very different from those of the film itself. Here we have not simply reproduction of recorded images, but a whole imaginative process, working on those images and giving free rein to individual thinking and initiative. Films, therefore, do not atrophy the imagination, as has sometimes been alleged but, on the contrary, set off mechanisms which, ceasing merely to "tick over", bring it nourishment. The film thus has an essential part to play as a catalyst.

The next phase to consider is that of observation. Faithful followers of Decroly reject films for this purpose. For them observation, as the starting point for the acquisition of any knowledge, must be direct observation of living creatures, phenomena and things. The study of the surrounding world is the essential technique for organizing observations. These principles require some qualification. A great many of the situations, phenomena, living beings or objects to be used as the basis for education cannot be directly apprehended. Distance, among other things, makes this impossible. Teachers of past centuries might merely bow to this impossibility, but we cannot continue to accept arguments which are now unfounded. The means that we command enable us to observe basic realities through reproductions whenever direct contact is impossible. As long ago as 1920 the Bessou Report submitted to the French Ministry of Education stated : "The direct study of things, living creatures, and the phenomena to which both give rise, entailing the use and exercise of all the senses, is a potent means of education. It initiates young minds into the deliberate and methodical study of things and develops their powers of perception and observation alike. The exercise of observation is thus at the basis of intellectual training".

Direct observation, however, is possible only to a very limited extent : very often the object itself is not available and only such representations as sketches, diagrams, pictures and photographs can be used.

A film, whether shown in the classroom or televised, supplies on request, and at the time and place desired, the most faithful possible reproductions of living creatures or things in situ. Such reproductions, moreover, are often more suitable for classroom observation than the reality, as a selection has already been made, a preliminary sifting carried out, and an order established which saves the children from the straying of attention that often occurs when they are alone with nature.

In addition, as other writers have stressed in this study, the cinema opens the way to novel, and often unique, forms of observation by adapting the real world to the understanding of the audience, accelerating phenomena that occur too slowly, slowing down phenomena that take place too quickly, and enlarging to the desired scale the images of creatures or objects which cannot be seen with the naked eye. Thus, the major part of the observations considered as the starting point of education cannot, in our day, be carried out without the assistance of audio-visual media in general and the cinema in particular. At the same time, the greatest possible stress must be placed on the need to see that, whenever possible, children are given the opportunity for direct experience, when they can see, touch, hear, smell, taste and do. A substantial body of complete experiences of this type is a prerequisite for making use of the secondary experiences supplied by the film, for the latter will fail of their effect if pupils do not already possess a frame of reference derived direct from reality.

This primary phase of observation must be followed by a phase of association, in which the importance of the part to be played by the film cannot be denied. Whether the original observation was based on reality or on film representation, it must now be associated with various experiences which provide the means of setting it in context making comparisons and noting similarities or differences. These give the child a greater store of knowledge and, more particularly, furnish the essential elements that enable him, with the help of the teacher, to formulate a judgement. The cinema, to which few realms are closed, offers all teachers the extraordinary power of bringing the world into their classrooms and choosing out of that world those experiences which they think will be useful to their pupils.

Less familiar, or less generally accepted, is the contribution of the film at the stage of repetition or drill, which must come between the phases of association and expression. While very few experiments have been carried out in this sphere, there is no doubt that, in the near future, filmed material, particularly in the form of cycle films, will make it possible to promote the learning of basic structures and mechanisms, e. g. in arithmetic or grammar, as has been done in the teaching of modern languages, where remarkable results are already being achieved. The systematic use of films for such drill will have the dual advantage of freeing the teacher from much drudgery, which he can hand over to machines, and of enabling him to devote more time to the nobler side of his work, and especially to observation of his pupils and finer adjustment of his teaching to the needs of the individuals in his class.

At the stage of expression, the pupils apply, in something they produce (written, oral, drawn, etc.), both their intentions and what they have learnt. In this respect, it is very difficult to discern what specific contribution the film has to make. On the one hand, these various modes of expression draw on an extremely varied range of data and, on the other, a large number of experiments have shown that the film often has a delayed long-term action. It has been noted in some cases that films appear to encourage written or graphic expression, but it must be stated once more that the precise contribution of the film technique is difficult to assess. It is less so in the case of expression through action, following the learning of skills or movements conveyed by one or more films designed for that purpose. But what is true for primary, elementary actions is no longer valid for the complex actions that constitute the essential part of the creative activity of a pupil, however young.

Association, repetition and expression are phases of the educational process. However, that process is far too dialectical in character for the order of those phases to be unchanging. On the other hand, the recapitulation which rounds them off is always the final phase. Once a pupil, encouraged by sound motivation, has observed repeatedly, associated various experiences, given free rein in various forms to his natural need to express himself, the teacher's function is to help him to recapitulate his experiences and knowledge, to delimit and to classify them. Here again, certain films made for that purpose will be of the greatest help.

The cinema, in fact, offers possibilities of making epitomes and audio-visual syntheses that help to fix ideas and images, ideas embodied in visual and sound images, permanently in the minds of children, thus confirming that films have a place at every stage in the educational process.

METHODS OF USING TEACHING FILMS

The forms in which the film is used vary according to the stage in the educational process and the type of educational activity in view. As the film's impact on the pupil is always more or less imperative, it must to some extent, impose its own requirements on the teacher. This brings us to an essential feature of this very adaptable means of teaching : by their very nature, radio and television always impose their own requirements, while filmstrips and records do not; the film does so to varying degrees, depending on its nature and on the purposes for which it is intended. It cannot even be said that the line of demarcation is to be drawn between silent films and sound films. In fact there are infinite variations in a range including the use of the film, in turn, as a subservient agent, an independent agent and an agent by itself.

As a subservient agent, the film is given a place in the lesson which is small in relation to the total length of that lesson. The teacher plans it out, deciding on the amount of time to be devoted to his treatment of the subject, to illustrative material, including films, and to questions and answers. The film forms part of a whole and serves, at a given moment with regard to a limited, predetermined point. So used, the purpose of the film is mainly illustrative.

As an independent agent, the film has a far more important part to play, as the teacher shifts to it a certain portion of his own work. More precisely, the teacher makes use of the film for carrying out tasks for which it is better qualified than he is himself or tasks that can safely be left to it. Two examples may be quoted to illustrate this dual contribution in primary education. In order to arouse the interest of his pupils in a given subject, the teacher decides to use a short film, dramatic in structure, by which they can be "put into the picture". After a few words of introduction, the teacher shows the film and, at its end, while the pupils are still under its spell, and therefore "conditioned", he helps them immediately, by questions and answers, to see what it has to teach them, and to sum up the situation or the problem. Another very different example of the use of the film as an independent agent is when the teacher has demonstrated a complex process that the pupils can fix in their memories only by literally soaking it in, for which they must rely partly on learning by rote. The teacher then yields his place to a cycle film, which goes on repeating the demonstration for as long as may be necessary. When all the pupils, unaided by the film, can repeat the gestures, words or sentences concerned, the teacher puts the film away and steps back onto the stage.

Examples of the use of films as agents by themselves are rare in primary education, although they are becoming more frequent in secondary and, above all, in higher education. The principle is familiar : when no qualified teacher is available, the lesson is left to the film by itself, or possibly with the help of an assistant teacher. The film is then conceived as a whole in which the appearance on the screen of a teacher or actors and the presentation of facts and documents are often combined. Various experiments have proved that students may derive great profit from this method of education. The primary school pupil, however, always needs a supervisor, if not a teacher, to guide him. This method of using films should therefore be tried out only very cautiously in primary schools, in exceptional circumstances or in special cases which make it necessary such as correspondence courses. Films of this kind might then be fitted into an educational television programme, with pupils doing written exercises and essays on them. This would save the young pupils from being left too much to their own devices. However, systematic research will have to be carried out in this field before the method can be generally introduced in primary education.

THE DIFFERENT TYPES OF FILMS

The customary distinction made with regard to the films used in primary education is between short and long films. This, however, takes little account of the radical difference between two types of films on considerations other than length. It is preferable to distinguish between "one-purpose" and "multi-purpose" films.

To begin with, it should be noted that primary schools are constantly on the look-out for short documentary films dealing with a clearly defined subject which can easily be inserted into the syllabus. This may perhaps be explained partly by reaction against the so-called documentary films which have made their way into too many film libraries, but also, and more especially, by unavoidable requirements of teaching. Teachers deplore that the variety of subjects dealt with in many films makes it impossible to use them successfully in teaching; they complain that, in spite of having time-tables drawn up in advance, they are not always certain of obtaining a film when required; and they note with some bitterness that the catalogues of film libraries appear to be biased in favour of recreational at the expense of educational activities.

The final report drawn up on conclusion of a large-scale survey among primary school teachers, recently carried out by the "Institut pédagogique national" in Paris, states that : "Some users propose, as a solution to a number of difficulties, that the establishment of class or school film libraries be recommended, containing basic documentary film material particularly suited to a particular class, its syllabus or the treatment of a given question.

Cinematographic documentation of this kind, in the form of very short films, could then easily be introduced into a lesson, at a time chosen by the teacher." To these proposals "replies as a whole were extremely favourable". A large number of advantages were stressed :

In general, such a decentralization of material in individual school film libraries is most desirable.

With regard to the actual teaching, the fact that the teacher is more familiar with the film, and that it can be used at any time, makes real integration possible.

Setting forth their wishes in greater detail, indeed, "these users also proposed the adoption of the 8 mm. format :

to make a radical distinction between the teaching film and the entertainment film ;

to assist the establishment of class or school film libraries, and the provision of equipment, on economical terms. A short silent 8 mm. colour film, running about 5 to 8 minutes, would be the new standard type of teaching film that these users would like.

Their preference, therefore, is for a very convenient teaching aid, intermediate, as regards use, between the filmstrip and the 16 mm. sound film."

Leaving aside the question of format, which should be solved by technical developments in the near future, we may note how important these trends are, and reply in advance to those who will certainly object that, under the pretence of progress, French teachers want to take the cinema back more than thirty years to the time of the silent film. In point of fact, they want films making use of all the resources of modern science, for the report goes on to add : "This documentary material should be very carefully studied from the cinematographic standpoint and produced with the help of the most up-to-date technical processes, i.e. slow motion, accelerated motion, aerial photography, animated diagrams, models, X-ray cinematography, etc.".

The most important feature, common to all these films for which teachers are asking throughout the world, however, is that they should be designed for one purpose.

They should not seek to give a broad, comprehensive treatment of a whole section of the school syllabus. They should concentrate on fact, cutting out, as it were, a thin slice of life to be inserted at a given point in a course or a lesson, and dealing only with one aspect of it : the particular one for which the aid of the film medium is needed. It is interesting to note that the above-mentioned report states this clearly in the following terms : "The object is not to treat the main questions in the syllabus of each class (e.g. the sea, surface relief, the skeleton, the main physiological functions, etc.), but to draw up a select list of points in lessons for which film documentation appears to be essential.

Examples : A film should be not on the limbs, but on the working of joints and muscles (X-ray cinematography) ;

not on the sea, but on a storm at sea or the tide;

not on mountains, but on an avalanche ;

not on autumn, but on hunting, the wine-harvest or ploughing ;

not on summer, but on harvesting, etc. ;

not on life in the Middle Ages, but on the making of a knight, etc."

The teachers asking for these class film libraries consisting of one-purpose films, however, themselves restrict the number of titles they want to about a hundred, and at the same time demand further additions to the collections of several hundred multi-purpose films to be found in film lending libraries. While documentary film material of this sort is just as necessary, its purpose is quite different. These films are longer and make use of all the scenic and dramatic resources of the cinematographic art to deal with subjects - generally fairly wide in scope - to which teachers usually refer as centres of interest. They can therefore be used to illustrate not a particular lesson but a series of lessons. This justifies, and indeed often necessitates, several showings, i.e. before the pupils begin the study of the centre of interest, by way of introduction to the subject ; at a particular moment while the subject is being studied, in order to explain, or to remind the children of, certain facts ; at the end of the study of the centre of interest, as a form of recapitulation.

How can such films satisfy ends that appear to differ so widely ? Firstly because of their structure, for they are often cast in dramatic form, deliberately bringing into play certain motivating factors ; and also because of their rich human content, since phenomena, things and situations are generally presented and considered only as they affect the life of human beings, a subject capable of sustaining the interest of young pupils for several showings. In addition, the motivation and the instructive elements are firmly interwoven without ever making the treatment too didactic. There is therefore always something fresh to discover.

Multi-purpose and one-purpose films can second one another admirably when series of films are produced, which should be the rule for primary school teaching. For example, a mult-purpose film on mountains may be accompanied by several one-purpose films dealing with the formation of mountains, glaciers, valleys, climate, etc., and monographs on the animals living at high altitudes. In this way, we get a well-knit instructional unit on a centre of interest, which, by the cumulative impact of the knowledge thus transmitted, produces far sounder and more lasting effects on the children's minds than would be possible with a hapazard production and use of material.

FILMS AND OTHER AUDIO-VISUAL AIDS

It must be added that, to produce its full effect, such an instructional unit calls for the use of other audio-visual aids to supplement the influence of the film.

The first of these is the filmstrip, which is the ideal and necessary complement to the motion film. A film projection is always a fleeting experience and needs fixing in the children's memory. A filmstrip retracing the main scenes or sequences of the film provides a basis for the requisite questioning and recapitulation. No teaching film should be produced, especially for primary schools, without a parallel series of slides.

Moreover, neither should now be distributed without an accompanying booklet for the teacher. When furnished with the notes and teaching hints contained therein, the teacher knows what he will find in the film even before he has seen and studied it. He knows its origin and all about it ; he knows for what level it is designed and what purpose it is meant to serve. He has the benefit of advice on the use to be made of it, as intended and indeed sometimes tried out by the educational adviser. The trilogy of "film, filmstrip and accompanying booklet" is undoubtedly one of the most useful assets which modern techniques have given to education.

The other audio-visual aids, however, must not be overlooked.

Graphic material, and more particularly photographs, posters and wall-pictures are sometimes supplied with a film as parts of an instructional unit built up around a centre of interest. But so much is now available that the teacher can also make his own selection from the existing collections to go with the films he means to show.

Gramophone records and tape recordings are always helpful in exploiting a centre of interest, as a means of backing up, in sound, the effect of the films. Some teachers who make extensive use of one-purpose films, incidentally, often prefer to rely on sound material for motivation purposes. In this connexion, they use wireless broadcasts as much as recordings. In its turn, however, the film can supplement the sound material, and there is no doubt that series of short one-purpose films can make school radio programmes more vivid and effective.

The same holds true for school television. On the one hand, educational television is a large consumer of both one-purpose and multi-purpose films and will probably, in the end, become the main means of exhibiting them. But, on the other hand, its fleeting influence could be usefully supplemented and strengthened by the repeated use in education, as often as necessary and at the moment when most convenient instead of at the fixed programme time, of filmed material designed as an accompaniment to television.

It is therefore quite impossible to consider motion pictures apart from other audio-visual aids. Their interdependence is obvious. Nor is it possible to consider them in isolation, without reference to their educational context. There is therefore no primary school teaching film that can be generally distributed without significant modifications. The way in which films for primary schools are produced and used must be the result of constant compromises between the art and technique of the film, on the one hand, and national, regional and local educational requirements, on the other. Films thus share the great possibilities, and the limitations, of all educational aids, which, being ready-made, require adaptation to the individual audience.

PART I

THE TEACHER, THE PUPIL AND THE FILM

TEACHERS AND THE CINEMA
by M. Franziskus (Luxembourg)

The cinema is now becoming one of the best media of instruction and education.

When the extraordinary new development of the film began after the Second World War, it might have been thought that it would become the pre-eminent teaching aid. The new 16 mm. films shown were, in comparison with those made in 1938-1939, of really outstanding merit and so well designed for teaching purposes that no slightest doubt was felt that primary teachers would come to regard the film as the most important of all the audio-visual media. However, the history of education shows that new ideas are not so easily adopted. They gain acceptance only in the long run and provided that the methods based upon them are recognized to be effective by the administrative authorities. Wishing to press ahead, the film is finding its road barred by the same difficulties that the activity school and the school printing shop encountered in their time.

Once past the period of curiosity, during which the film had some successes, it remained, in practice, very much on the fringe of the educational system, even though centres were set up for the purpose of lending schools films bearing on the primary and secondary school curricula. There were, of course, some teachers in all countries who were enthusiastically in favour of teaching films. But opposition continued, for educational films were still regarded rather as entertainment, when they were not criticized as encouraging a passive attitude among both teachers and children.

This reluctance on the part of certain teachers to accept progress is all the more difficult to explain for being often found among teachers who are conscientious and deeply concerned with their mission, and who give the best of themselves to their work. Holding a certain conception of education, they cannot reconcile the idea of active and attractive teaching with that of strict discipline, and they apprehensively reject anything which might, even indirectly, interfere with discipline. Their objections to teaching films are always the same : lack of time, overburdened syllabuses, eyestrain, harmful effect on imagination, etc. The cinema, about which they do not really know very much, becomes a troublesome competitor, "contaminating" the children. Such teachers are therefore prepared, if they must, to show a few slides or a silent film to prove that their teaching methods are up to date, but they will not show a sound film, which they regard as a direct competitor, all ready to take their place.

Can teachers go on along these lines when the influence of television films comes to be added to that of films shown in the cinema ? Ought not the teacher, rather, to strive to combat the spell of the cinema by developing a critical sense among his pupils ?

Moreover, far too many teachers regard films merely as a means of filling in "spare" time on a Saturday afternoon or just before school holidays. They do films a great disservice by provoking sometimes very hot reactions from parents and educational authorities.

What can be done to avoid this deplorable misuse of films ? The best course would be to instruct student teachers, at the training college itself, in the film techniques and the use of films in teaching.

Another step which might promote the use of films in classroom teaching is the establishment of a film club for teachers. The purpose of such a club would be to expand the knowledge acquired at training college. It would seek, firstly, to instruct teachers in the idiom of the cinema and, secondly, to make them better qualified to give their pupils aesthetic training through the use of films. Teachers would also have an opportunity of seeing recently acquired films. These film clubs could make suggestions to official bodies about the kinds of films to be produced, or purchased or exchanged, and this would provide an opportunity for establishing most useful co-operation between the authorities and the teaching profession.

The few suggestions given above are intended only to avoid the worst misunderstandings and to encourage the use of a medium which, as an auxiliary, can make an important contribution to education.

HOW PRIMARY SCHOOL PUPILS REACT TO FILMS
by Max Egly (France)

We cannot go into the manifold aspects of the great question of how primary school pupils react to films without reminding ourselves of the reason for considering it : we want to find out how far it may be possible to use films in teaching. In other words, how far can a teaching film be a really efficient means of instruction ? We must bear in mind that, in this context, the idea of "efficiency" takes many forms : a film is efficient not only when it conveys new ideas, but also when it helps children to assimilate them, understand them and memorize them. But in addition to this quantitative notion of efficiency, account must also be taken of the qualitative aspect. The teaching film is not merely a means of teaching better or more quickly. It has a special contribution of its own to make, providing concrete illustrations or unusual material, suggesting new lines of study and bringing about changes in attitude.

It should also be noted that, even before the problems of children's reactions to the cinema were systematically considered, teaching films were being made. At the present time, there are well-stocked film libraries in many countries, which regularly distribute to the schools educational films, often made by directors knowing little about the reactions of their young audiences. In fairness, it must be admitted that many of these films render excellent services. It is important to stress this fact when it is considered that some of the criticisms levelled against the use of films in teaching are based on the allegedly harmful effects of films. Finally, it should be noted that the term "primary school pupil" covers a great variety of children between the ages of 6 and 14.

This study of how primary school children react to films will not be confined to purely psychological considerations, for two reasons : in the first place, the results yielded by psychological investigations alone are limited and, in the second, teaching films are used in schools, or, in other words, under the supervision of a teacher and in more or less close connexion with a syllabus.

Probably because it had no predetermined place in the standard categories of theoretical or experimental psychology, the systematic study of reactions to films has proceeded slowly. We are still only on the threshold of discoveries. While both clinical and statistical methods are used, either separately or together, there is a tendency towards the development of new methods in research, which is beginning to make use of operative concepts derived from the sciences of communication, or from the scientific study of the cinema and its social impact.

Nor must we underestimate the constant contribution from the great testing bench of the schools themselves. It is obviously impossible for this to achieve the precise distinction between various factors that the laboratory can effect, but it has the advantage of allowing phenomena to be observed as a whole, i.e. of keeping closely united three items which are all of equal importance : the film, its content and the child spectator.

I shall discuss, in order, the problems of the film's impact, the part played by the affective mechanism of the pupils, and the question of adaptation as between film and child.

Problems connected with the film's impact

For the sake of convenience, and because they have often been the subject of separate studies, I shall deal firstly with the problems of understanding and secondly with those of memorizing and perception.

Understanding

When the question of showing films to primary school pupils comes up, it is often found that there are too schools of thought on the subject. Some people claim that the film is an excellent auxiliary because the cinematographic idiom is a kind of simple, universal language, requiring no special training to read nor long abstract discourse. Others again consider that nothing can be expected of films, which merely give the young spectator an incoherent mass of pictures and sounds. Investigations bearing on children's understanding of films make it possible to refute both these contentions. They show that the phenomena of failure to understand (whether total or partial) are the consequence not of a radically hermetic quality in the film as a medium but of the use of specific modes of cinematographic expression. And research workers have turned their attention to differentiating among these various modes and the degree to which they are understood by children of different ages.

It has since been possible to distinguish two types of understanding, the first being imperfect, where the child grasps the general subject of the action, knows "what it is about", and situates the subject of the film in space or time, and the second complete - logically speaking - where the child can give an accurate account of the events (or description of the objects) depicted in the film.

This second type of understanding calls for processes of thought concerned with relationships (relations of cause and effect, identity, reciprocal action and space-time relationships), and sometimes requires the spectator to reflect on the things seen (not being put off by the order in which shots are shown, interpreting the artifices and conventions used).

The first type of understanding is found in children of about six, and the second from about eleven onwards. Children experience the greatest difficulties when the film makes use of reverse-angle shots and elliptical treatment. Even in the simplest types of reverse-angle shots, for example those which, in depicting a dialogue, juxtapose the image of each speaker alternately, the child does not manage to situate the two characters in the same place. He merely imagines that two or more characters are speaking separately. Nor does he manage to fill in the deliberate gaps in a film due to the use of the various types of ellipsis, whether in time, when the film-maker compresses into a few seconds an episode which in reality has taken several hours, or in the form of "parallel cutting", when the components of two simultaneous actions are juxtaposed.

Day-to-day experience of the showing of films in schools, however, affords grounds for qualifying these statements. In fact, it has been found that some films which might be thought to be difficult to understand are correctly interpreted by the children (without guidance from the teacher). This can be explained when it is considered that the film's impact does not depend on the use of a single means (a simple image or a straightforward commentary). The spectator, whether child or adult, is simultaneously subjected to several series of stimuli (he follows an action, recognizes characters, is aware of the setting, sound effects, commentary, music). This is indeed the distinctive feature of what has been termed the "sequence idiom". Real breaks occur only when all these series are interrupted simultaneously. The importance of proper links between shots and sequences is even greater in the case of teaching films than in ordinary entertainment films. In addition, the carrying over, from one sequence to another, or from one shot to another, of as many known elements as possible facilitates not only understanding but also memorization. It should likewise be borne in mind that, contrary to widely held belief, the multiplicity of stimuli does not "dissipate" the attention of the young spectator. This is important with regard to the sound track and, more especially, music, which plays a very useful part when wisely arranged with the object of preserving continuity.

It must also be noted that certain elements, which appear to be extraneous to the actual subject of the film, far from interfering with understanding, may even assist it. This applies to many "dramatization" devices, where the information content is presented through a story, or the adventures of a character, or in the order of historical development. In this instance, the attention aroused (sometimes from the outside) reinforces the cohesion of the film or the sequence.

Memorization and perception

These few observations show, in themselves, that the cinematographic form does not convey its message to the child as if by magic. This runs counter to the widely held opinion that "the use of pictures, and more particularly of motion pictures, encourages a passive attitude among pupils". This idea of "passivity" is still very vague so far as psychologists are concerned. And the criticism can be seen to be groundless when it is remembered that, quite apart from the interest aroused by the content of the film, its mere apprehension necessarily brings into play the various faculties of cognition, often with intense emotional participation by the child. The mere fact of being shown a film, the presence, on a lighted area surrounded by darkness, of moving pictures, the focusing of attention, produce only the outward signs of hypnosis. In actual fact, the young spectator registers impressions, puts questions, recognizes, and experiences surprise, delight and sadness. It is also too often forgotten that the influence of the film is felt not merely during its projection but also afterwards. The schoolchild asks questions, remembers, and makes comparisons. The producer's first concern should therefore be to promote proper perception of the film. For a very long time, the shooting scripts of teaching films were decisively influenced by school textbooks. In a teaching film, however, it is not enough to set out everything about a particular subject in the usual logical order of a textbook, since the viewer of a film cannot go back to revise time and again, as can be done with a textbook, which can be dipped into at will, opened at any desired page, and allows reference back to an earlier chapter. The film unfolds its story in an unchanging sequence over a given time. The fact that it cannot be reversed necessitates a certain amount of repetition in the film itself. Such redundancy is particularly necessary in educational films and, the younger the pupils or the less familiar the subject, the more redundancy there must be. The pupil will be as grateful to the director for providing such reminders as a tourist following a mountain path is for the arrows which point his way. This redundancy, like the connecting links to which we referred above, makes both understanding and memorization easier.

It is self-evident that the more "redundant" the message is, the easier it is to grasp, as it contains fewer unforeseeable items. It must be stressed that what we have called "redundancy" is not to be confused with the mere repetition of a given passage of a film. The idea is to depict the same items repeatedly and in different ways, and the sequence idiom is excellent for this purpose precisely because of the diversity of the stimuli on which it can draw.

For that reason, until children are at least nine or ten years old, it is preferable not to show several films at one time and, in any case not without a break between them. For everything shown on the screen on one occasion finishes up, in the child's mind, as a single film, and the coherence of its components necessarily leaves much to be desired. This involves a danger of the children's making incorrect associations between events, or false generalizations, or of their thinking that something is a repetition when it is not in fact so.

Affectivity as a factor

It is very widely held that films have a bad influence on children and at the same time, paradoxically, the efficiency of the film as a teaching aid is questioned.

This brings up the question of the influence of films on the primary schoolchild's affectivity - a problem so complex that it must be considered from the following points of views :

(1) the relation between the showing of a film and certain affective states of the young viewers ;
(2) the difference between logical verbal exposition (oral or written) and the affective idiom of the film ;
(3) the operation of some pictures or sequences as a trip mechanism causing knowledge previously possessed to "click into place".

1. In studying the affective impact of a film from the point of view of the young spectator, we have to distinguish various levels of emotional influence : the traumatic effect of the shock occasioned by certain scenes is one thing, and the lack of interest or laughter with which a puerile film will be greeted is something quite different. In actual fact, cases of real mental shock, recognized and noted as such by psychiatrists are very rare. Moreover, they are caused by entertainment films and not by teaching films. The phenomena attributable to the attitude of the young audience to the film are far more numerous and important. The film is shown in the classroom, in connexion with a particular course or syllabus. The pupils are well aware of this ; they know that they are not "at the cinema" but that the pictures they are being shown have an instructional purpose. This merely makes them more critical with regard to a film intended for them : they will set their faces against any obvious sign of adaptation to their level (by laughing, lack of attention, remarks like "this is for babies").

2. More important, in practice, is the problem arising out of the introduction of new forms of expression into a system of teaching traditionally based on the written or spoken word. The teaching film cannot be regarded merely as an extension of the textbook illustration. It is, admittedly, the "window opening on the world" it is so often called, but it is a window which shows the world in a certain way. The child - and even the adult - does not pay equal attention to all the shots in a film. He retains an overall idea of a sequence, and it is on that overall idea that generalization is based. This overall picture actually remembered, however, does not always coincide exactly with the intentions of the film-maker, even if he has arranged strong beats and rests in his sequence. The difficulty is increased when the object is to use the film not merely to describe (films on geography or straightforward narratives) but to make the pupil understand, put things into perspective, or to prove something, for in this transition from the concrete to the abstract generalization is no longer enough. Where speech "articulates" using concepts of recognized categories (e.g. cause and effect), the film juxtaposes and associates. Very often, a child can remember that a particular event shown in a film is connected with another, without knowing how it is connected. On this point, research is only just beginning to tackle the theoretical and practical difficulties of "visualization". It is no accident that films designed for mathematics teaching are the most difficult to make and the fewest in number. Nor is it an accident that these films, more than any others, call for active work, under the guidance of the teacher, after they have been shown.

3. The difficulties of correlating successive shots or sequences are increased by a third phenomenon : the pictures shown do not merely give the child information but also bring back memories and set his imagination working on unexpected lines. After seeing a film on "a walk in the forest", children of eight claim to have seen a wolf. Others, after seeing a TV programme on Canada, say they have seen Red Indians. Yet neither of these films contained either wolves or Indians ! In such cases, the film acts not merely as a vehicle for communicating new knowledge but as a trip mechanism, causing knowledge already acquired by the child to fall into place. These observations are sufficient to show that films employing an allusive style (significant pictures without comment, an independent commentary having nothing to do with the image on the screen) are not suitable for primary school pupils. This does not mean that a straightforward film in which the sound track merely duplicates the images is necessarily the most effective. What is needed, rather, having regard to this trip mechanism effect, is to make use of all the informative material in the film, with due attention to the pupils' background knowledge, to direct their imagination along useful lines.

Adaptation

This short summary of the main aspects of the primary school pupil's reactions to the motion picture is enough to show how complex are the problems of adaptation. The simplest and most obvious solution - to make films simpler (in form and content) for the younger pupils - does not seem to be the best. How are we to determine the age groups ? How are the particular difficulties of each age group to be decided ? Even assuming that those two obstacles are overcome, there is a great danger of making over-simplified, puerile films, and an even greater danger of hampering any possible progress that the child might make in his understanding of the film idiom and, in general, of the audio-visual idiom. With regard to the last point, it is up to the teacher himself to make the choice. It is possible to show primary schoolchildren films, which while respecting the elementary rules of the film idiom, are rich in content. It is possible to foster and supervise the young audience's cinematographic culture.

Nowadays, teachers must concern themselves less with adapting films to the pupil than with adapting the pupils to the film and to the sequence idiom in general. In France, a large number of primary teachers have chosen this course. They are, incidentally, assisted by a series of phenomena which, by accustoming children to films and helping them to understand them, lead to *de facto* adaptation. Out-of-school visits to the cinema and the increase in the number of television sets are powerful factors in accelerating the development of young viewers living in the towns. Other factors which are more difficult to show up but no less effective also need to be taken into account : the reading of magazines and, above all, the increase in the number of childrens' periodicals (both good and bad) and the amount of space they devote to comic strips. Incidentally these, like the film, place separate pictures side by side, draw the pictures as seen from different distances, use the reverse-angle technique and select the significant or symbolic details of a whole.

This *de facto* training is obviously unguided and chaotic, closely linked up with the family, social, cultural and economic environment of the child. Its development depends on a number of contingencies. A systematic training, under the teacher's supervision, is not only superior in quality but also more effective. The showing of films, whether they are purely instructional or straightforward documentaries, should be accompanied by two types of exercises. The first and more important is to draw attention - with drawings or photographs - to the main new items of information in the film, so that there shall be no further difficulty in recognizing them. After the film has been shown, exercises to check on what has been learnt make it possible not only to see how effective the preparation has been but also to correct a number of errors. The use of these methods often produces spectacular results, as in the extreme case where a nursery-school teacher, commenting on the most difficult passages, was able to show a medium-length film, running for one and a quarter hours, to children of five and six, without their displaying, any signs of weariness. Between this case and refusal to make use of films at all, there are a large number of possibilities. Adaptation is necessarily relative (to a given audience or a given subject). The teacher has a wide range of choice between the animals of "La Grande Aventure" and the complicated machinery of "La Pile Atomique". *In point of fact, the experimental work now in progress is leading in the direction of adaptation of the pupil to specific, selected difficulties.*

This is not the place to stress the part to be played by the teacher in this adaptation. Actual teaching work demands it, and theoretical thinking provides unexpected justification for it. However, in the light of these observations, it is as well to draw attention to the importance of the whole body of films seen by the pupil in the course of a year. A single twenty-minute film cannot convey all the necessary information on a given subject. But what it says can be supplemented, confirmed and strengthened by other films. The need for making series of films is becoming daily more obvious. The care given to the making of a film should not lead to forgetfulness of the audio-visual context in which it must be set, its special place in the series of films and all the other teaching aids which may be used in conjunction with it. Once again, the whole is different from and greater than the sum of its parts.

GENERAL PRINCIPLES OF FILM USE

by W.G. Beaton (Scotland)

How can the educational film be best put to purposeful use in the primary school ? Given a projector, a reasonable supply of films and the requisite fund of enthusiasm and initiative, what practical steps can the primary school teacher take to exploit the educational potential of the classroom film to the full ?

These questions serve two useful purposes. They crystallize the theme of the present chapter and are typical of the blunt, down-to-earth questions which visual educationists are everywhere being asked, particularly in those countries where the school projector is still something of a rarity and film supply is as yet little more than a trickle. Such questions come in the main from practising teachers anxious for hard facts and practical guidance on the most profitable way of putting the projector to work in the schoolroom. Too occupied with their multifarious teaching chores to be able to keep fully in touch with each and every new development in teaching technique, they seek a compendious *vade mecum* on precepts and practice in visual aids - concrete suggestions on the steps which a busy but conscientious teacher might take to make the "silver screen" as essential a piece of school equipment as the traditional blackboard.

"A time to stand and stare"

As a first step towards putting the educational film to work in the classroom, a teacher could do worse than pause for a moment or two in his daily chores and take a quick look at education in the round. For one thing, it would enable him to assess more clearly just where, when and how in his own particular field of endeavour the film could be enlisted as a useful aid. "Will it enrich my teaching of geography", he might ask himself, "or is geography already served well enough with visual material ? Can it give life and reality to history ? Might it help me to clarify arithmetical processes or is that better done by chalk-and-talk methods ?" In other words, this quick look at the province of primary education would serve in effect as a stock-taking of the illustrative teaching resources at his disposal, as a useful check on existing deficiencies and as a pointer to which fields of study the film might be profitably introduced.

"To stand and stare" at primary education for a moment or two has this further benefit : it can help to remind teachers of the integrated nature of primary as compared with secondary schooling where, as a rule, "subjects", specialist teachers, inflexible time-tables and external examinations first begin to raise their heads. It might also perhaps suggest to primary teachers the part which the film medium can be made to play in assisting the integration of subjects, for there are scores of films which a good primary teacher can use for several diverse purposes. One of many experiences of the writer in this connexion stands out clearly in his mind : a brilliant demonstration lesson given several years ago by a primary schoolmaster using Chameleon, a six-minute colour sound film describing the characteristics and habits of the chameleon, with close-ups to pinpoint details of claws, tail, tongue and eyes. The teacher-demonstrator first dealt with the film as an essay in nature study - the primary aim of the film - and made an excellent job of it. He then used the sequence dealing with the chameleon's natural habitat as a peg on which to hang but a brief but effective "recall" lesson on the geography of a part of the world he had been teaching his pupils a few weeks previously. Finally, he seized upon the word "camouflage" in the commentary and from there he proceeded in question-and-answer fashion to build up a short vocabulary and phrase-making lesson. It was an excellent illustration of how film can be made to break down subject barriers - how, from the point of view of primary school requirements, nature study, geography and language can be "integrated".

Then again, a teacher's objectives tend to be more limited and short-term than those of an educationist who is accustomed to looking at education and seeing it as a whole. The teacher, through force of circumstances, is inclined to regard education as something belonging wholly or almost wholly to the classroom : his eye is on the time-table, the curriculum, the scheme of work : his efforts are in the main directed towards increasing his pupils' store of knowledge and raising their level of attainment. If he fails to pause, as suggested, for a quick look at education in the round he may easily end up by limiting his use of films to the purely instructional or direct-teaching type - the kind that of set purpose fit snugly into his time-table and scheme of work and aim more or less at communicating facts and figures about this or that subject. This would indeed be a great pity, for it would mean the exclusion from the classroom of background films - films not specifically tailored for teaching purposes but nevertheless educational in the broad sense of the term. It would mean, for example, on the score of curricular and time-table difficulties, the probable exclusion of films such as Walt Disney's Beaver Valley, Seal Island, Nature's Half-acre, and others in this magnificent series. And who would want Disney's nature documentaries excluded from the classroom ? Standing and staring at education now and again is probably the best guarantee that this will never happen.

Selection of films

When he is clear in his own mind as to where and how the film might enrich and illumine his teaching, the primary schoolmaster must then face up to his next task - that of film selection. Here let this caveat be entered. School films, like school textbooks, are produced for mass sale or distribution ; as with a textbook, no one film can ever hope to satisfy all the requirements of all teachers at all times. For an individual to expect a film to measure up to his every need is the height of foolish optimism. The only perfect textbook, it has been said, is the one written by a teacher for himself ; by the same token, the only perfect classroom film is one scripted, produced, directed, photographed and edited by a teacher for his own exclusive use. Since such perfection is unlikely to be realized in this imperfect world, the alternative is to exercise understanding and tolerance in the assessment and selection of films. A film is not necessarily bad because, in the eyes of an individual user, there are sins of omission and commission. The sins might become less heinous to the user if he remembers that the film was produced not for the use of one teacher in one school but for use by many teachers in many different school systems.

This caveat noted, and the age, aptitude and ability of his pupils always kept in mind, the primary school-teacher can get down to the job - never an easy one - of tasting and trying, which goes under the name of "film selection". Film libraries, like book libraries, vary in size, quality and range of material. They have on their shelves a variable number of films which for one reason or another - age, length, condition, etc. - are not worth using. But however small a library may be and however restricted its range of material, the same principles of selection should operate as in larger libraries. No greater harm can be done to the cause of visual education than to use films merely for the sake of using films. Unless a film is able to reinforce a classroom lesson or widen the pupils' cultural or emotional horizons in one pertinent way or another, it should not be used.

The principles of assessment and selection have already been very lucidly expounded in the Unesco publication "A manual for evaluators of films and filmstrips" (Reports and Papers on Mass Communication, no. 18, May 1956). Though the booklet was prepared primarily for the guidance of film and filmstrip appraisal panels, and although readers are asked to regard the manual as a guide rather than a rule-book, the general principles, definitions and recommendations for procedure hold good for the teacher exercising his own judgement. As a consequence, a primary schoolmaster in search of general principles to guide him in his choice of effective film material could do worse than spend a quiet hour or two browsing through the manual. If he pays especial attention to the last five sections of the handbook, he will be able with a little practice to choose wisely and well, for these sections deal with key sections - the audiences and purposes for which a film is intended, the accuracy and authenticity of its contents, the organization of the material presented in terms of continuity, narration and treatment, the technical quality of the film, and the general impression left in the mind of the viewer.

By applying these principles to the films which he hires or borrows from his regional or national library, a primary schoolmaster will in due course be able to build up a list of titles of tried and tested films which he can call upon time and again to reinforce his teaching. Generally speaking, a film of this kind will be on the short rather than on the long side; it will contain a severely-limited number of teaching points, each dealt with clearly but not in excessive detail; the pace will be slowish, with ample time for recognition of person, place or thing by the pupil; camera-work will be simple and straightforward, with nothing "clever" or "artycrafty" about it; the commentary, if there is one, will be economic of words and the words themselves will be well within the vocabulary range of the children; and, above all, the film will not be definitive - it will not tell the whole story but will leave lots of scope for annotation by teacher and scholar alike.

There is no royal road to film selection any more than there is a royal road to learning. In the process of building up a hard core of suitable titles, the primary teacher will find progress slow and his path beset by trials, tribulations and disappointments. Films do not always measure up to the descriptions given them in film library catalogues, and when they do they frequently lack one or other quality which the teacher deems necessary for his purposes. At the end of the day, it is undoubtedly tasting and trying which matters most - viewing and appraising each film hired from the library, trying it out in an actual lesson, and accepting or rejecting it according as it passes or fails these tests. If a teacher is prepared to work conscientiously along these lines, there is little doubt that in time he will assemble a really formidable battery of film aids.

Mastering the technique of projection

Most visual educationists would suggest that a first task of any teacher keen to put a cine projector to purposeful use in the classroom should be to master its operation - to become as much at home with it as an experienced driver becomes with the controls of his motor car. Trite though this statement might appear, it postulates a fundamental rule which, unfortunately, is probably more often broken than observed. All too frequently - in schools, at teachers' meetings, even at conferences on the international level - projection is slack and slovenly. Leader numbers are carelessly allowed to flit across the screen in rapid, bewildering succession; main titles are brought into focus too slowly and with insufficient definition; sound fails to come on at first or comes on with a deafening roar which has to be hurriedly muted; instead of fading out picture and sound smoothly at the end of a film, too many projectonists accept with apparent equanimity the sight of a bright but empty expanse of white screen and the hissing sound as of escaping steam that comes from the loudspeaker. These and other equally heinous projection crimes cannot be commited if the most is to be made of the educational film.

The vital importance of competent projection in the framework of visual education should be obvious to everyone. So far as the teacher is concerned, slipshod screening is undoubtedly as black a mark against him as slipshod speech or slipshod blackboard work would be, because a film which limps sorrowfully through a projector tends to produce an equally halting, ragged lesson. A teacher who is not complete master of his projection equipment is, by the same token, seldom in complete command of his lesson or his pupils.

Then again, schoolchildren are becoming more and more accustomed to the polished presentation of programmes by professional operators in the commercial cinema or on the television screen. They have come to accept that standard as the norm and unconsciously measure amateur projection against it. If school projection too often falls below a fairly high if undefined level, they begin to look upon film as a medium which one enjoys in the cinema but becomes bored with in the classroom - an attitude scarcely conducive to the receptive state of mind which teachers spend so much time in fostering.

Finally, pedagogical considerations apart, millions of pounds have been invested in the production of first-class educational films and of first-class projectors on which to run them. To be satisfied with anything except near-faultless projection, is to contribute to a tragic waste of money, time and skills. On this score alone, it behoves teachers to begin at the beginning and thoroughly master the technique of projection.

The problem of presentation

Equipped with a projector he can operate and with access to a number of films which satisfy his teaching requirements, the primary schoolmaster must next face up to the problem of presentation or methodology: how best to use the film, how to integrate it with the particular lesson in hand in order to secure maximum results ? It has been said with truth that an educational film is only as good as the teacher who uses it. This may be a statement of the obvious but it serves to underline the importance of teacher participation in film lessons. The film does not take over from the teacher ; it is an aid to and not a substitute for the teacher. It is an additional aid to existing methods, a supplement to oral instruction and to existing types of visual illustration and, as such, must be under as complete control by the teacher as other aids are. For this reason, the teacher must preview every film which he proposes to use in class : it is not sufficient to take a film on trust and hope it measures up to the description of contents given in the library catalogue. The story of the teacher who glanced through a list of catalogue titles, selected one called "The lion" for a nature study lesson and, on projecting it to his pupils, found it to be a Mickey Mouse cartoon, may be apocryphal - but it could well happen to anyone who refuses to go through the hoop of previewing all films before use in class.

Authorities agree that, on the evidence of research, the most successful method of using films is that based on the formula of adequate class preparation, followed by the presentation of the film, followed in turn by recapitulatory teaching, followed, if there is time, by a second screening of the film. Each teacher will naturally devise his own methods of presentation and modify them in the light of practical experience, but it is perhaps worth noting here the results of an investigation carried out in this field by W.A. Wittich and J.G. Fowlkes and summarized in the "Encyclopedia of educational research" (New York, Macmillan, 1950, p. 91) :

"Wittich and Fowlkes studied three methods of using sound films. The first involved little or no class preparation ; the second, a limited amount of anticipation of questions to be answered, different words to be noted, etc. The third method repeated method two, and a day later added oral discussion of pre-arranged questions and a second viewing of the film. The time taken by the various methods is presented below. The per cents are computed with method 1 as the base :

Method 1 - 35 minutes - 100 per cent
Method 2 - 45 minutes - 129 per cent
Method 3 - 90 minutes - 257 per cent

However, when we express the accomplishment of the students as per cents of method 1 (based on a 50-item test on the film) they are :

Method 1 - 100
Method 2 - 123 to 160
Method 3 - 157 to 199

Thus, the extra 29 per cent of time spent on method 2 over method 1 gave 23 to 60 per cent increase in information. But the 157 per cent increase in time of method 3 over method 1 gave only a gain of 57 to 99 per cent over method 1. Method 3 used twice the time of method 2, but gained only about 25 per cent in accomplishment over method 2. Thus we see that method 2 is the most efficient on the basis of the data presented."

What is the reward of the primary schoolmaster who conscientiously sets out to master the technique of utilizing films for widening the informational, cultural and emotional horizons of his pupils ? There undoubtedly comes to him the personal satisfaction of having added one more valuable tool to his teaching equipment. Even more important, however, is the knowledge that his pupils are benefiting from a fare which pedagogically speaking is richer in content and more appetisingly served. The "Encyclopedia of educational research" sums the matter up this way (p. 84) :

"The following claims for properly used audio-visual materials in the teaching situation are supported by research evidence :

1. They supply a concrete basis for conceptual thinking and hence reduce meaningless word-responses of students.
2. They have a high degree of interest for students.
3. They supply the necessary basis for developmental learning and hence make learning more permanent.
4. They offer a reality of experience which stimulates self-activity on the part of the pupils.
5. They develop a continuity of thought; this is especially true of motion-pictures.
6. They contribute to growth of meaning and hence to vocabulary development.
7. They provide experiences not easily secured by other materials and contribute to the efficiency, depth, and variety of learning."

In brief, any primary schoolteacher who is prepared to learn how to make proper use of films in the teaching situation will be contributing in no small degree to the efficiency, depth and variety of learning in his school.

PART II

THE PLACE OF THE FILM IN THE TEACHING OF VARIOUS SUBJECTS

THE USE OF EDUCATIONAL FILMS FOR MATHEMATICS TEACHING IN THE EIGHT-YEAR SCHOOL OF THE USSR

by N.I. Shakhmaev (USSR)

As some knowledge of the educational system of the USSR, even in the most general terms, is essential for a proper understanding of this article, we give a brief introduction which, without taking up too much time, should help the reader to grasp the basic facts.

Under the USSR educational system, attendance at the eight-year school, which is the first stage in secondary education, is compulsory for all children between the ages of 7 and 15. On completing the eight-year course, most children continue their studies for a further three years at the secondary eleven-year school, where they are given production training. Promotion from the eight-year to the eleven-year school does not depend on examination results; any pupil who completes the eight-year course may continue his studies at an eleven-year school if he so wishes.

Some pupils, however, on completing the eight-year course, enter one of the specialized secondary schools, at which they receive both specialized training and a general secondary education. Pupils leaving the eleven-year school and those leaving specialized secondary schools are equally eligible to enter any of the higher educational establishments.

Secondary and specialized secondary schools offering evening and correspondence courses exist for adults who, for one reason or another, were unable to obtain a secondary education; courses taken at these schools confer the same rights as courses at regular secondary schools or specialized secondary schools.

In 1962, 39 million pupils attended schools providing general education. In the same year, 800 thousand pupils completed their secondary school course and gained their matriculation certificate. In addition, more than 445 thousand pupils completed the course at specialized secondary schools.(1)

This, very briefly, is how secondary education is organized in the USSR. Its salient feature is that all children are equally entitled to the advantages of a secondary education, and that there are no "dead-end" schools.

In the course of the next ten years, the programme of the Communist Party of the Soviet Union provides for the introduction of a compulsory eleven-year secondary course of general and polytechnical education for all children of school age.

The present article deals only with the use of educational films for mathematics teaching in the eight-year school.

The mathematics course in the eight-year school covers three subjects - arithmetic, algebra and geometry. The aim of the course is to give pupils a thorough and careful grounding in the basic mathematical principles and skills which are essential for their general education, for their practical work at school and after, or for the continuation of their studies. In addition, the study of mathematics helps to achieve the wider aims of education.

The basic principle governing the content, organization and methods used in the teaching of mathematics in the eight-year school is that education should be in close contact with life, work and the practice of Communist construction. The application of this principle helps pupils to form a true picture of mathematics as the science of the spatial forms and quantitative relations found in the real world, and to show them the importance of mathematics in the life of contemporary society, both in the realm of technology and science.

A systematic and deliberate attempt to develop the pupil's powers of logical thought is made during the process of mathematics teaching. In the early stages of the mathematics course, visual aids are extensively used to teach the basic mathematical principles, so that pupils gradually master the methods of proof by deduction, which will become increasingly important as the course proceeds.

Two types of visual aid which have been widely used in recent years are films and slides. In planning and producing educational films, Soviet educators are guided by the following principles:

1. Educational films are one of the visual aids used by the teacher in the educational process organized and directed by him. They must therefore fulfil the main requirements of Soviet educational theory as regards visual aids:

(a) the presentation of the subject-matter must be in line with the aims of Communist ideology;

(b) the facts presented must be scientifically correct and accurate;

(c) the material shown must be related to life and to the practice of Communist instruction;

(d) the subject must be adapted to the pupils' age-group, degree of development and educational standard.

2. The subject-matter, nature, content and structure of an educational film are determined by the school syllabus and its educational purpose, as well as by the nature of the material to be screened. Every educational film should be carefully planned for the audience to which it will be shown. The producer of an educational film should have a clear idea of its function in the educational process.

3. The decision as to how much material should be included, and how detailed the treatment of it should be, must be based on the prescriptions of the syllabus.

4. In producing an educational film, it must be remembered that the teacher will be giving lessons in conjunction with the film.

5. Since there are many different ways in which films can be used for teaching purposes, schools require various types of film: (a) films that deal systematically with a particular topic; (b) films that illustrate a subject already explained by the teacher; (c) instructional films; (d) general survey films; (e) guided visits and documentary films; (f) scenes from plays.

Schools specially need educational films consisting of one or two reels, which can be shown separately, short sequences, both with and without sound-track, and cycle films.

6. As a rule, educational films should include only material which it is impossible or difficult to explain with equal or greater clarity by other visual aids - provided that such material lends itself to filming.

7. An educational film should contain no shots or episodes not directly related to the topic being studied, even if they are interesting in themselves.

8. As far as possible, the material should be vividly and dramatically presented. The means used to attain this end, however, should be inherent in the subject-matter itself - the use of extraneous means of making the film attractive is to be deprecated.

9. In an educational film the material should be presented in strictly logical order and at a fairly slow tempo.

10. No material should be shown which is not related to the subject, as it might distract the pupils' attention.

11. The methods adopted for shooting the film, cutting, composing the sequence and editing should ensure that the subject is presented as accurately and fully as possible.

12. Colour films are indispensable, particularly for primary school and for natural science subjects - geography, biology, chemistry and physics.

13. The impact made by filmed educational material should be predominantly visual - sound and commentary are of minor importance in films on mathematics.

14. In educational films visual image and sound track should not be divorced from each other - they should be correlated like the melodies in counterpoint, so that they form an audio-visual entity. The spoken commentary should be the most prominent feature of the sound track. The use of industrial or natural sound effects is justified only if they add to the pupil's understanding of the material taught.

15. The commentary should be simple, short, comprehensible, and easy for the pupils to assimilate. The terms used should be adapted to the pupils' educational standard, vocabulary and age.

16. An educational film should have no musical accompaniment, unless it helps the pupils to concentrate or to understand the lesson better, or is of value for their aesthetic education.

17. Sound recordings should always be of good quality, and should faithfully reproduce both bass and treble tones.

A low-voiced commentator is preferable for educational films, since a low voice has more overtones than a high one, and therefore greater resonance.

In the USSR, special attention is paid to the use of educational films in teaching. Since 1956, special courses on educational films have been given in all pedagogical institutions, to instruct teachers in the correct use of films in teaching. Student teachers study the theory of educational films; and acquire practical experience in handling projectors in specially equipped laboratories.

Special handbooks on the use of educational films in teaching the various school subjects are published for the guidance of teachers.

There is a wide network of film libraries throughout the country, which supply educational films to schools free of charge. Every eight-year school has its own sound projector. Secondary schools are equipped with a number of projectors.

We shall now consider the use of educational films in the teaching of arithmetic, algebra and geometry.

The aim of arithmetic teaching in the eight-year school is to develop the pupils' skill in performing mathematical operations involving both whole numbers and fractions, to familiarize them with the dimensional relations most commonly found in everyday life, to impart to them a knowledge of the rudiments of geometry and to enable them to make simple practical calculations.

From his first lessons in the lowest class, the pupil is faced with such complex concepts as size, number and figures (in an elementary form, it is true), and his future scholastic progress depends largely on how well he grasps these concepts. At this stage, pupils are incapable of abstract reasoning, and the teacher must rely on visual presentation. Films can be of the greatest assistance in this respect; and it is to be regretted that their potentialities have not yet been fully exploited in the Soviet Union. A certain number of educational films on arithmetic have been produced, mostly in the last few years, and these, despite certain defects, had such encouraging results that production is to be stepped up rapidly.

We shall now consider some arithmetic films used in the Soviet Union.

A film entitled "Metric measurements" is used for the detailed study of mensuration and the principles of the metric system. It explains the need for measurements, the defects of measuring methods, and the use of measuring instruments - all in a way the pupils can understand, so that they gradually realize the necessity of standard unit measurements. Then they are shown the standards of length and mass which are kept in the Mendeleev State Institute.

Another film on a somewhat similar subject is "Measurements of size", which carries the notion of dimensional measurement a stage further. The subject of measurements - of length, area and volume - is dealt with in a very graphic, interesting way. This film is intended for Grades V and VI.

The conception of the film on "Problems of movement" is particularly interesting. It is intended for use with Grade V pupils, who, for the first time, have to solve problems involving the concepts of movement and speed - concepts they sometimes find difficult to understand.(2) It is divided into five separate sequences, each presenting a particular problem in an interesting way, and showing how to solve it. The use of this film in class helps pupils to form and memorize the algorism for each kind of problem. The content of the film is as follows :

First sequence : The relation between the speed, distance and duration of movement.

Second sequence : The problems of converging movement.

Third sequence : Problems related to the movement of two bodies from one point to another, in the same direction, but at different speeds.

Fourth sequence : Problems of movement from two points to a third point on a straight line.

Fifth sequence : Problems of movement with and against the current of a river.

Space does not permit discussion of other films on arithmetic. We shall merely mention some new educational films on which work is now proceeding and which, in our opinion, are of particular interest in that they are representative of the general trend in the production of films on arithmetic. They include "Size and its measurement", "Numbers and figures", "From nought to ten", and "How machines count".

Our stock of educational films includes a series on algebra. The algebra syllabus for the eight-year school covers operations involving rational numbers and algebraic expressions, linear and quadratic equations and simple functions. The following films on algebra for use in connexion with this syllabus have been produced or are in the course of production : "The system of co-ordinates and simple graphs", "The technique of calculation" (documentary), "Direct and inverse proportions", and "The numerical axis". It is worth noting that all methodologists who have studied the question of algebra films for the eight-year school agree that there is no need for more films on this subject.

The teaching of geometry offers very great scope for the use of educational films, partly because of the nature of the subject and partly because of the particular ways in which pupils grasp it.

For example, it is known that few pupils are able to visualize the processes by which geometrical figures change shape. Psychological research (3) shows that many pupils have great difficulty in distinguishing the essential properties of geometrical figures if their secondary properties are changed. The uniformity and immobility of geometrical figures paralyses their imagination. Films should therefore be used to elucidate the principal geometrical problems concerning the changing form and position of figures.

Films on geometry are of great assistance in developing the pupils' powers of abstract reasoning and visualization of space, because they can readily present in visual form the connexions and relations between the various parts of geometrical figures. Observing the properties of a figure in various positions helps pupils to distinguish its essential properties, which are invariable under all circumstances. Lastly, an educational film can supplement the textbook most effectively by presenting the properties of figures in a graphic way, by helping pupils to make the transition between model and drawing and by showing how geometry can be applied in practice.

The undoubted advantages of using educational films in geometry teaching, however, should not blind us to the fact that visual methods must not be used at the expense of a formal, logical treatment of the subject. The teaching of geometry can only achieve its full purpose if the increased use of visual methods to give pupils a clear idea of all the particular forms of a figure, all the positions it may occupy in space and all its relations with figures previously studied makes them conscious of the need for logical demonstration of the fundamental properties which that figure alone possesses.

The logical demonstration should not be imposed on the pupils from without. They must feel the need of it themselves, as a result of observing a large number of different properties, both essential and accidental, of the figure being studied - and this can most easily be achieved by means of the various kinds of visual aid, one of which is the educational film.

Some writers are of the opinion that it would be simpler and better to use various kinds of jointed models rather than films. This is only partly true, however, and only if the model is not too complicated. If it is, the variety of details and hinged joints in the model may distract attention from the topic being studied and fail to produce the desired effect.(4) In these circumstances an educational film will obviously be much more effective. We quote an example taken from the work of the well-known Soviet educator, A.N. Perepelkina, who has spent many years studying the problem of using films for the teaching of geometry. (5)

When teaching pupils that the perpendiculars of a triangle intersect at one point only, the following preliminary observations should be made;

1. Pupils should observe the position of the perpendiculars of an acute-angled triangle when one of the angles varies from approximately 0 to 90°.
2. They should observe the perpendiculars of a right-angled triangle.
3. They should observe the position of the perpendiculars of an obtuse-angled triangle when the obtuse angle varies from approximately 90° to 180°.

A pupil who has made these observations will understand that:

(a) the perpendiculars of any kind of triangle always intersect at one point only;

(b) the point of intersection of the perpendiculars of a triangle lies inside the triangle only in the case of an acute-angled triangle.

In a properly planned course, if the pupils make these observations, they will want to find out more about them and to prove for themselves that in a triangle of any shape or dimensions the perpendiculars always intersect at one point only.

This principle can be illustrated either by a jointed model or by a very simple film. In order to ascertain which method was more effective, a model was used in some classes, whilst others were shown a film entitled "The intersection of the perpendiculars of a triangle". This experiment showed that in every case the film was more effective from a teaching point of view, and helped pupils to retain what they had learnt.

We have now produced a large number of films on geometry for the eight-year school. We give a list of some typical films, together with a short account of their contents.

1. The reciprocal position of two circles
(two sequences)

Two pulleys are shown, turning first in the same direction and then in opposite directions (belt drive). The pulleys gradually fade out, and instead two bright circles appear on a dark background, separated from each other. The distance between the centres of the circles is compared with the sum of their radii.

Then the circles move until they touch. The distance between the centres is now equal to the sum of the radii. An example is shown of transmission by friction. The circumferences touch. The distances between the centres are compared with the sum of the radii. Next, transmission by gears. The circles touch, one inside the other. The last example shows the transmission of movement from a rod to a flywheel (the conversion of a to-and-fro movement into a rotatory movement).

2. Intersection of the perpendiculars of a triangle (one sequence)

This sequence shows that the perpendiculars of a triangle or lines produced from them intersect at one point only in any kind of triangle (the base AC of a triangle ABC remains horizontal, while the vertex B moves along an invisible straight line parallel to the base).

In an acute-angled triangle ABC, a perpendicular is dropped from B to AC (which it meets at b) and from C to AB (which it meets at c). The following caption appears on the screen: "Bb is a perpendicular and Cc is a perpendicular". In the triangle outlined on the screen, a third perpendicular, AE, is dropped, which is shown to pass through the point of intersection of the first two perpendiculars. This point is indicated by a flashing light, and the letter P appears. The caption changes, to read: "All three perpendiculars of the triangle ABC intersect at point P. The same is true of any triangle".

The truth of this statement is then demonstrated. Point B moves slightly to the left, to the right, and again to the left, and the perpendiculars move with it. As point B moves to the left, the point of intersection approaches the vertex of angle A, which is almost a right-angle. Then angle A becomes a right-angle, point P coincides with the vertex of the right-angle, and the two perpendiculars coincide with the sides of the right-angle. Yet another illustration is given: point B is moved slightly to the right and then to the left. When angle A is a right-angle, a caption appears beneath the triangle, which reads: "Angle A is a right-angle, point P coincides with the vertex of the right-angle". The caption disappears, point B moves to the left, angle A becomes an obtuse angle, and the perpendiculars appear, with their prolongations, which intersect at one point. A caption appears which reads, "Angle A is an obtuse angle. The prolongations of the perpendiculars intersect outside the triangle ABC". The caption disappears, point B moves to the right, and the demonstration is repeated when angle A is obtuse, right-angled and acute. Lastly, angle C becomes a right-angle and then an obtuse angle. The conclusion is projected on the screen: "The three perpendiculars of a triangle or their prolongations always intersect at one point only". This is the end of the sequence.

3. Field mensuration (nine parts)

This film shows a team of pupils performing various types of ground measurement. The commentator explains the purpose of the work, the use of the instruments and the order in which the various operations are performed. Drawings of the lines, angles and plans being used are very skilfully inserted into the sequences. The film takes the form of a conducted tour, led by the commentator, of an area where a team of well-trained pupils are taking various measurements.

First part (80 m.) Laying out and measuring a line (Grade VI).

Second part (65 m.) Surveying a piece of ground, using a cross-staff (Grade VI).

Third part (109 m.) Measurement of angles in the field and of the azimuth of a given direction, determination of direction according to a given azimuth and measurement of the angle between two directions (Grade VI).

Fourth part (97 m.) Survey of an itinerary (Grade VI).

Fifth part (42 m.) Indirect measurement of distances, using trigonometrical relations in a triangle (Grade VI).

Sixth part (51 m.) Surveying a piece of land by means of markers (Grade VI).

Seventh part (72 m.) The use of axial symmetry to lay out a line traversing obstacles and to measure distances (Grade VI).

Eighth part (78 m.) Measuring the height of an object by means of an eclimeter. Plane-table surveying of a piece of land by polars (Grade VIII).

Ninth part (119 m.) Surveying a piece of land by circumscription. Geometrical levelling (Grade VIII).

The purpose of this film is to prepare pupils for field work; the relevant parts only are shown.

4. Symmetry in a plane

Relation of a plane to a straight line as a transformation of the plane into itself; the application of this principle to the solution of problems of construction; symmetry in nature and technology. Three sequences of 80 m. (Grade VI).

5. The elements of stereometry

This film is intended for pupils in Grade 7. It is in three parts.

6. The solution of certain problems of construction

This film is in three sequences.

The above list includes only those films which are most typical of the main trends in the production of films on mathematics for the eight-year school.

After analysing the existing films on mathematics and planning the future production of such films for use in the mathematics course in eight-year schools, we formed the conclusion that some mathematics films are not early so useful as we thought. Not only the structure of the film, its content and commentary, but also the rôle it plays in education and the stage at which it is shown must be taken into consideration. Films vary widely as to their effectiveness.

Research carried out at the RSFSR Academy of Pedagogical Sciences has proved that short sequences are usually the most effective. There is evidence to suggest that in a short sequence it is easier to determine how much information should be dealt with and how quickly it should be presented.

Lastly, we should like to make a suggestion.

A good deal of research has been done on the educational film as a technical aid in education. A wealth of experience in the production of educational films and their utilization for educational purposes has been accumulated in all countries over the years since they were first used, but it must be admitted in all honesty that no general conclusions have been drawn from this experience, and that we have not yet evolved a theory concerning educational films. The usefulness of the educational film as a teaching method has not yet been scientifically evaluated with proper precision, and today, as forty years ago, we frequently hear heated arguments about the possibilities of educational films and the most effective ways of using them in education.

It is therefore desirable that national efforts in this field should be united under the leadership of Unesco, and that in the next two or three years a basic textbook should be published on problems related to educational films. Soviet educators and specialists in the production of educational films are prepared to co-operate as fully as posible in the preparation of this work.

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THE TEACHING OF GEOGRAPHY AND HISTORY

by Miss M.C. Simpson (United Kingdom)

The two subjects of history and geography have come to be closely associated in the curriculum, and this is especially so in primary schools, where subject divisions are not nearly as hard and fast as they become at later and more advanced stages. Thus, for the age-range which we are discussing - which is defined in the French category of "premier degré", and covers, for English conditions, the primary school and first year of secondary (7-12 years) - the social sciences are often regarded as a composite, and both classroom teaching and project work take little note of the academic boundaries between history, geography and civics.

But when we come to the contribution which the ciné-film can make in this sphere of teaching, we immediately run up against an acute problem, and one that is inherent in the nature of the medium. The familiar association of the social sciences and the blurring of subject demarcations in the general approach suitable to this age-range and ability-level; the gradual widening of the child's experience of life from the known to the unknown, in terms of physical environments, historical settings, and social attitudes and techniques different from, but intelligibly related to his own - all this obscures the fact that, from the point of view of film, a sharp cleavage is involved. Geography, whether "human", "economic", "regional" or "physical" is here and now, actual. Visual techniques - and in particular the moving film - can bring the actuality of the external world into the classroom in a way that no other teaching techniques can achieve; that is their special value and function, now recognized and established in any country whose educational system is not hopelessly backward or out of date in is appreciation and application of teaching methods.

Children of the primary age are mainly interested in matters which impinge their first-hand experience and in people or other living things. Thus, most of the geography-teaching at these stages is either directly related to the children's own environment or to the study of people in different geographic situations. While in the earlier stages emphasis is placed on encouraging direct observation and on providing impressions, as curiosity is aroused the children soon develop the desire to understand the "reasons why". Thus, even with younger children, training soon begins in the perception of simple relationships and cause and effect.

Making the abstract concrete : The film has much to contribute at this stage. While it is never, nor does it seek to be, a substitute for first-hand experience, a suitable film can prepare, it can amplify and it can revise or consolidate the children's activities. For example, films such as "The Baker", "The Engine Driver" in the series *People who work for us* give added meaning to a visit to the railway station, the local bakery and so on. Similarly such films form a valuable part of project work based on the local studies approach to geography. But interest is not entirely centred on such aspects of their social environment and children can easily be helped to recognize some of the physical factors which affect their daily lives. For instance, even very young children make very simple weather observations; at this stage it is mainly a matter of looking and recording; but the slightly older children soon become aware of and want to understand phenomena in the world around them - for instance day and night, sunrise and sunset, and in temperate lands why there are changes in lighting-up times, throughout the year. While models and diagrams are part of the teacher's explanation, only a film such as "Day and Night" can show the globe with its titled axis rotating in space. Again, the simple interpretation of scenery often involves an understanding of changes resulting from slow processes which are difficult for children to grasp. Here films such as "Glaciers", and "The Changing Coast", where actual photography is used in association with animated diagrams, can help to explain features of the landscape which are easily observed by those who live in glaciated country or near the sea. This ability to give concrete meaning to abstract terms, even at elementary levels, is among the important functions of the film.

Perhaps one of the major contributions of the film, however, is its ability to give a realistic impression and an imaginative experience of people and their lives in other parts of the world in ways which cannot be achieved by any other teaching method. The scope of such human geography films is unlimited even with children of six or seven years. For such a purpose the "Children of Many Lands" series, for example, is appropriate and effective. In a somewhat similar field there are many films dealing with aspects of economic geography which may be linked with the goods seen in shops or the use of which may arise from considering the sources of the clothes the children wear, the food they eat and so on. Others - for example, "The Rice Growers" - emphasize the production of a crop, but in terms of human work and life they suggest economic interrelationships.

A teacher who is attempting to give his class a real understanding of, say, the life of a Sioux

Indian or the work of a wool farmer in Australia and does not use a film to illustrate his lesson is not only wasting valuable teaching time - since the film will do effectively in ten minutes what he will probably do ineffectively in half an hour - but even more serious, he is wasting, or at least he risks wasting, the interest of his pupils by failing to arouse that quality of active participation, that edge of excitement, which is the essence of teaching and learning. Moreover, the effective use of a well-chosen film can have another and vastly important result which may be regarded a by-product of the more specific classroom work, in that the children develop attitudes to other people in other parts of the world which form the basis of international understanding. One cannot begin too young with this.

In other words, to the teacher of geography, at any level, the technique of the moving film as a classroom technique is no longer a novelty or a frill; it is a necessary requirement for economic and efficient instruction.

"Contrived art" for history-teaching: When we come to history, the position is entirely different. If geography is, by definition, here and now, history is, equally by definition, past and gone. Apart from a fairly small field of contemporary or recent events recorded since the moving film came into existence, and apart from the potentialities of television in presenting the historic "now" (and one would not want to discount the value of either of these, but only to stress their inevitable limitations), the visual actualities of the past are past, never to return.

Thus, while the use of the film in geography-teaching is a "natural", its use in history-teaching is a matter of contrived art. We are, in fact driven to one of two expedients. We may resort to putting on film actual authentic records - manuscripts, documents, contemporary prints, portraits and so on. Alternatively (or, of course, additionally), we may attempt to reconstruct the past by the use of actors and studio sets. This is not that geography films are inevitably successful, and history films almost bound to fail. On the contrary, there have been, and continue to be many poor and ineffective geography films, and there are some first-class history films. But it is to say that, in approaching the value and use of the films as a teaching aid, one finds the problems posed by the history film to be radically different from those posed in geography, and a great deal more difficult to resolve.

Let us take one primary consideration. The historic document or picture may be authentic, but not particularly "visual" nor otherwise particularly impressive. Furthermore, it is likely, from the point of view of cine-film, to suffer from two serious disadvantages. First, it is essentially static, so that any cinematic quality has to be imparted by movement of the camera, not of the subject. There are only a limited number of tricks available in this way to the director and camera man, and any one of them is liable to become obvious and monotonous on repetition. Second, the document or picture in its original form was intended to be read or viewed at leisure, probably in a book; its content and scale were adjudged to this end. When it is rephotographed on to moving film, blown up to screen size on projection, and held for a matter of seconds only, quality, impact and significance are all bound to be affected.

To continue with another point, and a related one. The eye is a potent medium for exciting the creative imagination, especially in young children. But it is not the only one, and may not be the best. Let us take, for example, Plato's account of the death of Socrates, or Magellan's diary of the first attempt to circumnavigate the globe, when, 90 days out of sight of land, they were reduced to eating the leather rigging of the ships, and "rats became a great delicacy". With documents such as these it is the words - and especially the spoken words - that count; the child supplies his own visuals, and any attempts to do it for him is probably a mistake. On the other hand, other records are inherently visual, and can do authentically for the child what he could never do for himself - for example, the Field of the Cloth of Gold, or the Luttrell Psalter, or Hogarth's London. Here it is the contemporary scene that gives life to the words.

Hence, the use of an historical document in a teaching film, and even more, the extent to which such documents can be multiplied in any given film, is a matter of nice judgement both for the educator and the film-maker; there is a continual question whether the effect aimed at can be best achieved by this medium. And it is fair to say that in this matter there are wide and legitimate differences of opinion; in France, for example, the classroom film tends to rely very much more on historical documents than teachers in England would consider tolerable.

Problems of visual reconstruction: When we turn to visual reconstruction, other problems present themselves, and a great deal of discrimination is needed. At one end of the scale is the completely authentic assembly of museum material in a real setting - for example, the neolithic "Skara Brae" sequence in the Ministry of Education film "The Beginning of History". At the other end of the scale is the deplorable pseudo-historical charade type of film of which one could give all too many examples in any country. It is a pathetic comment on the paucity of history films generally that this kind of travesty remains popular, even with teachers who should know better. In between these two extremes lie other types of more or less reputable reconstruction. There is what one might call "the authentic artificial", like the Iron Age farmstead at Little Woodbury, again from "The Beginning of History", where meticulous care was taken over the accuracy of period detail. There may also be fictional reconstructions which are nevertheless authentic in spirit, of which an outstanding example - though it was not intended as a teaching film - is "La kermesse héroïque". Equally one can have the theatrical historical reconstruction, which, however entertaining and superficially accurate in period detail, is completely false in spirit - for example, Korda's "Private Life of Henry VIII". There is thus a very considerable obligation and responsibility imposed on the teacher; he must have discrimination and taste as well as knowledge. The visual impact of the projected image is so great that to leave the wrong impression with the child may do as much harm as the right may do good.

There is, arising out of all this, one very important general point to be made about historical reconstructions - and it is this, more than anything else, that is responsible for the comparatively small number of good history teaching films. To create the illusion of authenticity involves not only the most scrupulous research and meticulous scripting; it involves also elaborate studio sets, the use of skilled professional actors and, most of all, a director so soaked in the period that the camera catches the spirit as well as the substance of the historic scene. In other words, a good history teaching film is bound to be expensive. To attempt to do it on the cheap is worse than useless; it is to court the almost certain disaster of the "horror-comic-charade".

What has been said so far lays perhaps excessive emphasis on the problems and difficulties underlying the history teaching film, and insufficient emphasis on the value of its contribution in history teaching. In point of fact, the difficulties can be, and have been, surmounted in many instances and in a number of ways; by, for example, really imaginative camera-work and direction in dealing with a purely static document, combined with the judicious use of music to create atmosphere. An excellent instance of this is "The Bayeux Tapestry" (Films du Compas). Again, the intelligent and analytical use of three-dimensional models in historical reconstruction can be most illuminating, as in "Mediaeval Castles" (Gaumont British). A well-balanced admixture of natural photography, studio reconstruction and animated diagram or model-work is probably the most satisfactory general answer to the problem, and a good example of this is the Ministry of Education film "History of Writing". But such a technique obviously relies as much on the individual director's sense of taste and balance as on the educational content.

There is, however, one further technique which has perhaps hitherto been inadequately explored, and this is the anthropological approach - the use of contemporary survivals or analogues to recreate the spirit and something of the substance of a bygone age. This was done successfully in "Mediaeval Village" (Gaumont British) and even more interestingly in "Palaeolithic Man" (Gateway), in which the contemporary way of life of Australian aborigines is linked with cave paintings and authentic museum material of the Palaeolithic period.

In general, while the contribution of the teaching film in history is certainly less quantitatively than it is in geography, qualitatively it is substantial and important, and it is extremely important that this situation should continue. History is an inherently difficult subject for children, although very fortunately it normally seems to have an inherent interest for them. If the state of the world is any criterion, we certainly must teach it very badly. Many of the lessons of history are both perennial and plain, and yet each successive generation completely ignores them. If we can - as we surely should be able to do - use visual techniques to excite and stimulate the creative imagination of children, and make the dry bones of history live in such a way that its lessons may be learnt, then we shall be doing something more than we have hitherto done towards accepting and discharging the educator's responsibility to the future of civilization.

Final points: We may perhaps end on two or three final general points. One is that in both history and geography - as, indeed, in other disciplines - the contribution of the moving film can be greatly enhanced by the use of associated material - filmstrips, wall-charts, pictures for children's own use, teachers' notes, and so on. This device of deliberately associating different visual media was the subject of an experiment by the Ministry of Education of Great Britain some years ago. Unfortunately, "visual units" (as they were called) were never followed up, but the device has two obvious advantages: it prevents the moving film from being overloaded, and its flow held up, by the excessive inclusion of static material, and it enables the lessons and the stimuli of the film to be visually recalled and confirmed at leisure.

Again, as between the two subjects of geography and history, not only are the problems of production techniques different, but the scope and function of the resulting film itself must be regarded as differing also. All successful teaching films must be first and foremost successful films; they must be well constructed, they must flow, they must have dynamic quality to arouse interest and excitement. The purely didactic film is nearly always a waste of time and a misuse of medium. But the use of the film in geography allows a very much wider range of approach and teaching content than is possible or desirable in history; this is for the reason mentioned earlier, that in geography visual actuality is inherent. Thus the range can stretch from the highly-didactic type of film like "Glaciers and their Work" (Centre audio-visuel de Saint-Cloud) to the almost purely subjective and impressionistic type, like Sucksdorff's "Rhythm of a City". But in history the main function of the film must be to stimulate by creating the illusion and atmosphere of reality; the dramatic content must therefore dominate the factual, and details of factual teaching will often be best relegated to, or at least expanded by, filmstrips or other media.

In both subjects, in spite of the rigid, and sometimes misguided, devotion displayed by teachers to existing curricula, one of the most valuable contributions of the film may be to extend boundaries, to open up new horizons, and to suggest that the water-tight compartments imposed by educational disciplines do not necessarily hold good in life. It may, for example, be for the film to suggest to teachers and pupils alike that in a rapidly-changing world the facts and emphases given by geography textbooks are not sacrosanct, and may be obsolescent - as is done in the Modern Geography Series produced from United Nations material by the Centre audio-visuel de Saint-Cloud and the Educational Foundation for Visual Aids. It may equally be for the film to suggest, as is done in the Western European Union series "History of Modern Science", that in a world dominated by technological discovery, the life and achievements of Calmette, Einstein or Rutherford are as important a part of history teaching as are those of Frederick the Great or Le Roi Soleil. And it is at the younger age-levels, with which we are here chiefly concerned, before academic tradition has had time to harden the arteries of learning, that this elastic approach to knowledge is best started. The film is in its nature an elastic and revolutionary medium. If it is to make its real contribution to education, it must be treated as such, and not as an animated textbook or blackboard.

THE TEACHING OF NATURAL SCIENCES

by Dr. Horst Ruprecht (Federal Republic of Germany) and J. Valérien (France)

Natural science teaching has steadily developed since the beginning of the century.

Teachers are no longer concerned primarily with instilling knowledge. Their main efforts are concentrated on creating understanding and love for the creatures and things around us. The teacher is more concerned to develop a taste for knowledge than to impart that knowledge. In this way, natural science teaching aims at being "formative".

Dogmatic, purely didactic methods are being gradually abandoned and the instruction of children between ten and fourteen is no longer left entirely to the teacher. The study of a living creature or of a phenomenon is most frequently based on material brought into the classroom from outside. Such material is original, part of the local environment. The teacher asks questions rather than giving information. It is a perfect example of the active method, the method of "rediscovery".

For example, the study of the squirrel is not based only on morphological observation. The teacher tries to shows the class how it is that the squirrel is a tree-dwelling animal, using the anatomical structures as a basis. Thus the squirrel is studied from a biological angle. Nor is its place in nature, in the world of living creatures, forgotten. Thus its relationship with other animals is studied, the plants it eats, etc. This leads to a global or integral method, the natural complement to which is the film. The use of slides for illustration purposes does not, as films do, supply the dynamism that this integral method requires.

A film shows every pupil the results of patient research better than any other medium can do. For children between the ages of ten and fourteen, certain aspects of life, e.g. those discovered by use of the microscope or radiography or by the long-term study of animal behaviour, are only accessible by means of films. Those who question the value of this method and declare for example that the film encourages laziness in pupils too often forget that the film is only a supplement to experiment and personal observation.

This supplementary aid has now become essential. Many natural phenomena cannot be observed or experienced directly, for example, the functioning of bodily organs.

The film has many other advantages that fully justify its use. The growth of a plant and the circular movement of climbing plants are exceedingly slow processes which cannot be followed by the eye, while the process of cinematic acceleration allows of continuous observation. Slow motion films permit the detailed study of swift movements such as the whirr of a humming-bird's wing, the irregular flutter of insects' wings, the different phases in the circulation of the blood. More recently, the film through the use of radiography has opened up new fields of study for children. Microscope viewing is difficult and almost always restricted in the case of young pupils. Films can make many phenomena clear to them.

For all these reasons no modern teaching of the natural sciences is conceivable without films. We must therefore consider the problems raised by the notion and classroom use of natural science films.

The notion of natural science films

Natural science films figure prominently in film libraries. They are of very different kinds: documentary films and monographs; science popularization films; historical films; research films, etc. Which of these types are best suited to children between ten and fourteen?

Experience has shown beyond a doubt that the film most commonly used is that dealing with a relatively precise subject, e.g. a monograph on an animal or plant.

To be suitable for children of school age, such films must satisfy certain preliminary conditions. Each sequence should be long enough to ensure that it is properly understood, and the different sequences should be linked to form a continuous whole. A scene should unfold itself sufficiently slowly for the pupil to observe it accurately and be made aware of the smallest detail. This need not exclude, where possible, spectacular shock effects which alert the child, but the first condition must always be respected.

A well-constructed film monograph will always show the life of the particular animal or plant being studied within its own environment. In studying an animal, for example, the film should show the relationship between male and female, the bringing up and care of their young, how they are fed, their friends and enemies, the lair and its surroundings, particular sounds they offer, if any (the cry for help, warning, the battle cry ...). The animal should not be studied in its individual aspect only, but as one of its species.

In addition, films should stimulate the observation of nature. Thus, the tracks of an animal in the snow or in soft ground will be shown, the kind of vegetation with which it is associated, its relationship with man.

While the teacher's comments are often preferable to a standard commentary, which may not always suit the level of the class, the value of a sound track should not be overlooked. A sound film will always furnish the teacher with necessary guidance and enable him to offer his own comments to the pupils, the film being shown them without the sound track. Where, for example, a woodpecker is the subject of study, a sound track is essential. Natural cries and sounds should make up most of the sound track, occasionally backed by a brief commentary intended to draw the attention of pupils or give than necessary explanations.

A natural science film can be restricted to a far less general subject i.e. to the study of a single phenomenon such as blood circulation. Such a film might be very short, limited to the recording of a few heart beats and reproduced on the screen in very slow motion. Such films can be silent and included in a class film library. However, the use of this type of film for children between ten and fourteen is limited, as their capacity for analysis may not be sufficiently developed. But they can be useful either as supplementary material in a subject that has already been studied, or to add to the class's knowledge of some particular fact.

Films describing the life of great scientists or the history of important discoveries deserve special attention. For pupils between ten and fourteen they serve as a harmonious link between various subjects. Moreover, they provide an excellent illustration of the history of science and are powerful centres of interest to pupils.

Biographical films, in which contemporary documents are used bring to life men who have made a significant contribution to scientific progress. Films giving the history of a great discovery may be successfully used for children between ten and fourteen, as they contain a key idea that is easy to understand and show clearly how the labours of scientists of different nationalities have contributed to the well-being of mankind. Finally, films of this sort facilitate understanding of the experimental method.

The use of natural science films

The use of natural science films should follow a clearly defined plan. They should only be used to supplement direct observation and classroom experiment.

In the first place, a film may be a focus of interest and be used to introduce a subject. For example, the film "La lutte contre les microbes" might be used to introduce the study of illnesses, which would cover several weeks. In the same way, the study of a natural site, such as a pond or pool, can be prefaced by a film on fresh-water fauna. The film would then be a point of departure for more advanced work which could be done either with the help of filmstrips or through specimens collected from the site. The film would then be shown a second time and a discussion might be held on certain clear and specific points.

Films may also be used to sum up a series of observations. Thus pupils might observe throughout the school year the garden spider in their terrarium, or pay several visits to a neighbouring breeding establishment. When they have exhausted the possibilities of direct observation, the teacher will consider it advisable for them to summarize and supplement the knowledge gained. In a film on the spider, the children will observe details hitherto unperceived such as secretion of the silk thread in the glands, or the exact way in which the web is constructed. Moreover, a film of this kind gives pupils a recapitulatory view and enables them to grasp the exact connexion between the different phases or results they have observed or found.

A film may also be used during a lesson to illustrate a particular point. Films of this kind should be included in the class or school film library.

Apart from these standard forms of usage, another way in which natural science films can be employed must be mentioned. There is no doubt that television has a very important part to play in film transmission and some networks are already broadcasting extracts of films on animal life for pupils between the ages of ten and fourteen. A teacher wishing to use such films may either do so directly or, long after the broadcast, refresh the memory of his pupils by referring to films that have been broadcast.

In this way, natural science teaching films are of very great value. The film supplements observation and experiment and its purpose is fully attained when it encourages such experiment and observation.

The film is essential to natural science teaching since both teaching and film are rich, varied and dynamic. It is the teacher's job to make judicious use of the film in order that it may fill out his course at appropriate times and places.

THE TEACHING OF APPLIED SCIENCE

by M. Favier (France)

Primary schooling is still the only formal education many children receive. Especially in the lower forms, this education is in the hands of a single teacher whose difficult task it is to teach them various subjects and provide them with at least the rudiments of a moral, civic and intellectual training. He carries out this dual task through the subjects he teaches. However, in teaching applied sciences, his aim is not merely to impart knowledge but above all to arouse intellectual curiosity, the faculty of observation, and a critical spirit while at the same time perfecting their use of language and their means of expression. The primary school syllabus gives the teacher a degree of liberty which he can profitably use by choosing the subject-matter of his lessons from among the resources of the district. Starting from easily observable facts, he may then direct the minds of his pupils towards other discoveries. Thus, the subjects are most varied and enable him to bring his pupils into contact with rudimentary notions of physics, chemistry, technology, natural sciences and with practical applications of arithmetic.

What means are available to the teacher to arouse, maintain and develop the interest of his pupils in those subjects ? In the first place his own knowledge enables him to measure the volume of possible teaching material. He has then to choose the objects, apparatus and simple experiments which will enable the conclusions towards which he wished to guide his pupils to become fixed in their minds. He can then draw on local resources or documents to show how such properties have been applied in everyday life.

School textbooks, however excellent, cannot satisfy this need. The teacher may find ideas in them, but the standard lessons they include can only bear fruit if the teacher brings them to life and adapts them to his pupils' needs. Even if his material is very simple, but varied, he can with the help of his pupils very often construct the apparatus and models he requires. The association of the pupil in the construction of small-scale apparatus develops his powers of observation and reasoning. The lesson attains maximum efficiency. On the other hand, when the pupil's observation is centred on an experiment carried out by the teacher himself, the demonstration is less effective because observation is difficult. The need to magnify the experiment so that it is visible to everyone then becomes apparent and this can be done if a film of the experiment is at hand. Attention is then drawn to the essential fact, covering the whole screen. Shown from different angles, the experiment is grasped, through repetition, even by slow, inattentive or idle minds. Slow and quick motion shots, if the action takes place too swiftly or too slowly, enable the mind to grasp the various stages. Films make it possible for an experiment to be illustrated faultlessly, in a way in which it cannot be performed in class.

The cinema screen is sometimes, of course, merely a screen between reality and the child. But, when a film is projected at a lesson, to supplement direct observation, that fault disappears and the entertainment it offers helps to stir the sluggish mind. However, this must not go so far as to project in class films of all experiments which entail the slightest difficulty or all those that can only be performed by the teacher himself. A perfect film makes it easy for children to understand its meaning, and this may encourage some degree of mental laziness in contradiction with the film's purpose. There is, however, no doubt that a film becomes a necessity when it depicts an experiment that cannot be done in class because the equipment is too costly, because it is too difficult to set up, or the results are difficult to observe and when the experiment is dangerous.

Apart from or on the basis of direct observation, the teacher must train his pupils to reason. As understanding becomes difficult at this stage, reasoning calls for an image to mark the successive stages. A blackboard diagram is useful as an aid to reasoning in this way. A picture from which everything unnecessary to the understanding of the facts has been eliminated begins by surprising the pupils, to whom the simplifications that have been made have to be explained. After that, the diagram explains many phenomena. Static diagrams are easy to draw. But as soon as any change or movement takes place, the explanation becomes more difficult and use may have to be made of articulated models, the construction of which is often so difficult and lengthy that most teachers prefer to do without them. Once again a film is needed.

An animated diagram superimposed upon the actual picture makes it easier for the first stage to be achieved, i.e. to assist the child to accept and read the picture, from which everything superfluous has been eliminated. The animation of the diagram with the possibility of slow or quick-motion projection, according to the purpose in view, facilitates understanding of the phenomenon. A return to the actual picture, animated or still, by fading out places the explanation in its proper context.

An animated diagram may even be used to give concrete form to more abstract notions such as speed variations, in a problem of moving objects, which pupils are required to solve. Direct experiment or observation has made it possible to illustrate certain concepts during a lesson, although it is not possible to define them accurately because of the inadequate scientific knowledge of the pupils. For example, after the existence of an electric current in a circuit has been observed and the characteristics and properties of that current have been experimentally differentiated, it is impossible to give a true definition of standard terms such as volt, amp and watt. In such case it is necessary to fall back on analogies. A film makes it possible to emphasize the difference between stress and intensity or between power and effort. Here again a film is essential.

In other words, a properly used film is a valuable aid to the inculcation of elementary scientific concepts. How can it be used in teaching applied science to primary school pupils. In this case, photographs can be used to supplement textbook illustration and this is done whenever direct observation is impossible. But building yards, workshops and small factories offer the best and by far the most lifelike examples.

A class can study the details of a motor engine by visiting the village mechanic. In the locksmith's workshop, they can see how an acetylene blow lamp can solder two pieces of steel; how, when acetylene is combined with an excess of oxygen, the metal can be burned and how electricity can serve the same purpose.

If a class has watched masons and other building labourers at work on a job for weeks, it is extremely useful to summarize rapidly everything observed in a table which will fix these observations in the memory. When in such cases direct observation can be supplemented by a film on the subject, the educational benefit is not merely doubled but increases in geometrical progression. Nevertheless, it must be admitted that direct observation is not always possible or may be of little interest to children.

Big industrial plants, for example, in spite of the curiosity they arouse, offer very little real interest to a group of schoolchildren. In factories the mechanism which would illustrate the use of certain modern machinery is often hidden beneath protective casing. A chemical factory, a coke-plant, a sugar or oil refinery, where a maze of pipes connects hermetically closed containers, is still more mysterious. The manufactured articles may be seen on the spot, but, for the uninitiated, they appear to be the products of magic. Pupils must therefore be helped to pierce the mystery of these hermetic machines, these water-tight containers and those mechanical brains that work for us. All this presents no problem to the camera lens. The protective casings of machinery fly open, and movements can be slowed down or speeded up. The small detail to which the machine owes its existence may cover the whole screen, it comes to life and its movements can by analysed. The superimposed animated diagram depicts only what it is essential that the mind should retain. Even the hermetically sealed containers open and, assisted by a diagram suited to the class, pupils can grasp the radical changes that take place in a molecule. Editing enables the work to be speeded up and operations which in fact extend over several days, can all be seen in a matter of seconds. Appropriate sound effects help to create in the classroom the atmosphere of a visit paid under ideal conditions.

In this way a film in the form of very short sequences finds a natural place in a classroom lesson and has become a valuable tool for the teacher. It confirms the collective observation of an experiment, and it enables the different stages of the experiment to be studied in detail. Films can show experiments that cannot be conducted in practice. They come to the aid of explanations that are too abstract. A film forms a useful adjunct to a completed visit and replaces in the classroom a visit that cannot be made.

However, a film can only become this valuable aid if the sequence filmed fits in exactly with the lesson, and it is here that the responsibility of the teacher lies.

If the film is to be used with maximum efficacy, there must be prior co-operation between producer and prospective user.

Until now, this paper has referred only to films or film sequences illustrating theoretical concepts or practical achievements. It is also desirable to make available to teachers complete "synthetic" films which contain the essence of concepts that have been learned in a different way from that used in class. These films approximate closely to a good documentary. Shown either immediately after the lesson or a few days later, they will fix acquired notions in the memory.

However perfect film pictures may be, they are fugitive and do not lend themselves well to detailed observation. Therefore, each film should be accompanied by a number of stills taken while the film was being made. If these stills are displayed in the classroom for a number of days, they can be studied by pupils and used as a point of departure for individual work. Where films describe the manufacture of particular products, it is advisable to have samples available for pupils to study at their leisure.

The producer of film sequences or synthetic films should work in close co-operation with the teacher and faithfully interpret the latter's ideas. The methods employed by a technician in making documentaries are not to be despised, but he must never forget that his film is designed for incorporation in a lesson. The shots should be meticulously studied and their utilitarian purpose kept in view, i. e. they should be extremely clear and descriptive and should last long enough to be grasped by the entire class. The human scale should always be observed, movements should be actual and not caused by travelling shots of static images. Editing should conform to the ideas to be implanted in the pupil's mind. Natural sounds and silences are essential to create atmosphere. Environmental noises, even if faked in the studio, are preferable to a musical background. The commentary should be straightforward and the vocabulary adapted to the mental level of the class.

Must educational films then be austere and dull ? Children are accustomed to commercial films and will not hesitate to make comparisons. Accordingly, the teaching film must be composed of images that are legible, but artistic. An element of poetry or drama, contributed for example, by the lighting, need not be altogether ruled out.

An accompanying booklet is essential. It enables the maker to explain to the user his aims and how he hopes to have attained them. By supplying the basic documentation he has been able to collect in making his scenario and his commentary, the producer can enable the user to exploit the film to the best advantage.

Thus, the film appears to be an essential medium for teaching elementary science. Its use, however, is still too often limited by the fact that the projection equipment of schools is in short supply, by the small number of available films and the fact that they become rapidly superannuated by the advances of science and technique. It is only to be hoped that equipment may become easier to obtain and that film-lending libraries may increase in number. There is no reason why teaching material should be confined to the useful but imperfect science manual.

VOCABULARY TEACHING AND THE TEACHING OF EXPRESSION

by Michel Tardy (France)

Modern teaching films for imparting a knowledge of the mother tongue appear to follow two essential lines. In the first place the film is regarded as a conveyer of language (vocabulary films) (1) and in the second as an initiator of language (films motivating expression analysed in the central section of this paper). In the first type, the stress is on the sound track, regarded as a model linguistic environment, in which children are steeped so as to become impregnated with the vocabulary, making it their own and reproducing it. In the second category, the stress is mainly on the picture and the sequence of pictures, used as a stimulating factor, a point of departure supplying an impetus to spontaneous activity and, if possible, self-expression.

1. The film as a conveyer of language

Almost every film conveys language in the form of a commentary, inset sub-titles, superimpressions, words on the pictures, footnotes to diagrams or animated drawings. The use of this language for teaching purposes raises a number of problems, including that of the nature of the commentary and the relationship between word and picture.

(a) The nature of the commentary : The commentary introduces a number of factors, the educational value of which has not yet been systematically studied.

In the first place, the words employed in the commentary are often left to chance inspiration. But detailed studies have been made of the basic vocabulary (2) and the commentary of teaching films should be based on these so as to exclude words of no practical value and to construct the vocabulary of the sound track from words in commonest use.

Next, the frequency with which words recur in a commentary is a factor to be taken into account.

Nor is the tone of the commentary without importance opening up, as it does, a wide field for educational film research. Commentaries are generally spoken in an impersonal tone which the occasional use of expressive inflections does little to modify. At the same time a commentary may be declaimed dramatically or rhythmically, be in verse form or make use of children's jingles, and extend to a sort of verbal singsong, the educational value of which may be intrinsically interesting ; the relationship even between commentary, sound effects and music should be carefully studied by the producer and tested experimentally.

(b) Relationship between word and picture : Word and picture are in a dialectical relationship that can be defined as follows : the picture's function is to illustrate the word, the word's to organize the picture. This relationship is of considerable importance in the teaching of language by audio-visual means.

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(1) This category includes most teaching films, whether they deal with history, geography, physical or natural sciences, to the extent that they contain, in addition to a demonstration or explanation of phenomena, a store of words, phrases or syntactical structures. This brings us to a standard educational problem : every lesson is to a large extent primarily a vocabulary lesson, for things have always to be given a name before they can be analysed and explained. Moreover, analysis and explanation necessarily enlarge the vocabulary.

(2) cf. Dottrens et Massarenti : Vocabulaire fondamental du français. Cahiers de pédagogie expérimentale et de psychologie de l'enfant no. 4 Ed. Paris, Delachaux et Niestlé.
Le Français fondamental (1er degré). Publications de l'Institut pédagogique national. 2nd edition, Paris, 1959.

The picture has to illustrate the word. The film image subtends the word or expression; the object is not only named but is at the same time shown and thereby an immediate relationship is established between the concrete object and the name given it. In a film, as indeed with every other visual technique (direct observation of an object, engraving, slide, filmstrip, televised broadcast), vocabulary teaching avoids the pitfalls of verbalization. However, a film can go beyond that illustrative function. It can serve as a process of induction and thus encourage the growth of concepts, so far as the same word is accompanied by pictures showing the same object in different aspects, or by pictures presenting the named reality in different situations or incarnations. This possibility of induction corrects the chance association between a word and an object which illustration alone may help to create.

Further (this is the second relationship between word and picture) the word organizes the picture or sequence of pictures. The word interprets the cinematographic picture: the picture, presented in isolation, is a compound of forms, colours and movements within which it is not always possible to distinguish what is essential from what is accessory (3). The words or phrase introduces an order into this factual situation. They draw attention to a particular feature, ascribe a particular significance to an unfeatured situation, link one image with those preceding or following it. In this way, the commentary initiates a reading of the images on the screen, but it is an imposed, select and sometimes arbitrary reading. A commentary can be regarded as a second editing of the film. The talking picture involves two concurrent readings, the reading of the edited shots and that of the oral commentary.

These two categories of problems, both of them a source of difficulties, do not, however, affect the educational importance of a film with a commentary. The latter gives pupils the opportunity of learning a number of words, phrases and terms and thus contributes, to an extent still to be determined, to the learning of the mother tongue, which traditional teaching methods continue by other means. (4)

2. The film as initiator of language or as a motivator of expression

In this case, the film contains no language model nor any store of words or expressions, but is the point of departure for expressive activity, which need not be merely oral but also graphic, gesticulatory, etc. Here there is no question of throwing the pupils into a "linguistic bath" for the purpose of getting them to learn phrases through general impregnation, but of providing them with sensations, sentiments or emotions which they will need to interpret after projection of the film.

This class of film has two important consequences for the learning of language:

(a) The learning process is "displaced"; it occurs not during but after the projection;

(b) The purpose is not merely to learn a language from a model by faithful reproduction, but to find personal forms of expression.

These are the two types of film that can now be used in the teaching of the mother tongue. However, before dealing in greater detail with films designed to stimulate expression, an examination necessitated by their novelty and their experimental nature, it must be pointed out that the two types referred to (films conveying and films initiating language) are hardly ever found in the pure state, i. e. fully differentiated. Every film may be said to have some power of motivation and conversely, as will be shown later, the film intended to stimulate expression tends, if it has a commentary, to supply semantic and syntactic models.

Films motivating expression

This new trend in educational films, the appearance of a new film category (the addition of the motivation film to teaching and "know-how" films) is based on a theory that has not yet been fully proved. We have first therefore to consider how far this motivating power of film images is a fact.

One difficulty confronts us at the outset. Assuming that such films stimulate the child's need to express itself, how do they provide him with the means to do so? At the same time as a need is aroused, should not the child be given the oral and syntactical material without which that need will remain no more than an idle wish? Moreover, is there not a danger lest such material may dry up inspiration or give it a stereotyped form? Two aspects of this problem will be considered - the motivating power of the cinema and the function of the commentary in motivation films.

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(3) Moreover certain film processes introduce a scale of values within the same image: the breaking up of space by lighting, the disposition of objects and persons in depth, concentrating vision on selected movements of characters, the exploration of space by moving cameras, etc.

(4) This contribution of films to the learning of the mother tongue applies also to foreign languages. An example is the interesting enterprise which led to the establishment of a modern language film club at the Académie de Paris, where members are shown foreign films in the original version. Further instances are two films made or in the making, namely "Je marchais" by Jean Fléchet (CREDIF, Saint-Cloud) for teaching the present, imperfect and perfect tenses and "L'oiseau qui perd ses plumes" by Max Egly, J.E. Jeannesson and Jean Guénot (Centre audio-visuel, Saint-Cloud) on the vocabulary of colours in English).

1. The reality of the motivating power of films

(a) An empirical objection furnishes possible answers. To some extent current experience, particularly that of film clubs, appears to show that films are little apt to arouse a need for expression. On the contrary, it seems that a film projection induces in the spectator a state of hypnosis or semi-hypnosis, the influence of which appears to last for some time after the show has ended. Film club discussions are conclusive on this point : they are ill-attended and the generally low standard of debate seems to show that one effect of the film is to stifle self-expression rather than to stimulate it.

This objection, drawn from the current experience of film clubs for adults or young people can be refuted by reference to a number of empirical observations. In the first place, while it may be true that a tendency to dumbness is noticed after a film has been shown, the same is not true during the performance. On the contrary, the spectator participates actively and it is possible to observe not only silent symptoms of personal identification with the film's content, but also many visible manifestations, i. e. changes in facial expression, signs of approval or disapproval, changes of posture, expressions of feeling, audible comments, etc. Every spectator, even the least mentally alert, betrays intense activity during the showing of a film, and an audience of children is particularly eloquent by word and gesture.

Again, the importance of deferred expression, often overlooked, must be stressed. It has occurred to film club organizers to hold a meeting of members some days after a film has been shown and they have noticed that the level, bulk and quality of discussion were distinctly higher than during the period immediately following projection. Teachers have observed that a certain episode in a film, at first overlooked by their pupils, suddenly comes back to mind a few days, sometimes not until a few weeks, later and with a force which the first reaction of seeming indifference had not suggested as likely. Moreover, in youth film clubs, it has been possible, a week after a film has been shown, to obtain written essays expressing ideas, often pertinent and subtle, that the discussion held immediately after projection had failed to evoke.

All audio-visual teaching of expression must take into account two things : it must understand that a film awakens in its audience a variety of feelings and emotions and generates energy that is often powerful ; and it must also understand that that energy may not be immediately at call but that an interval of time is sometimes necessary. It is also possible that powers of expression gain from a process of gentle nursing, the subtle forms of which require definition.

All the same, it is necessary to go beyond these empirical findings and adopt an experimental attitude towards the actuality of the motivating power of films.

(b) A preliminary experiment : A preliminary experiment (5) has been carried out in a primary school in France (second year, age of class between 8 and 9). The children in this class were tested in two different ways at an interval of several days. On the first occasion, they were shown an engraving and on the second a film. After each showing (lasting 10 minutes), they were asked to give their opinion of the engraving and of the film. After the teacher had given the necessary explanations, his task was limited to taking note of all the verbal reactions of his class.

The results appear to show that the motivating power of a film is higher than that of a drawing. Not only were the views expressed after the showing of the film more numerous (50 contributions after the film and 29 after the engraving), but they were also of better quality (after the projection of the film the following phenomena were noted : discussion among the children, co-operation, corrections of one another's words, a desire for information ; none of these phenomena were provoked by the engraving).

The result of this experiment was therefore positive : it shows that the motivating power of a film is a fact. However, it was thought necessary to test this phenomenon more thoroughly, to experiment on a larger number of subjects and especially to assemble appropriate experimental material. This is now being tried out at the audio-visual centre of the Ecole normale supérieure at Saint-Cloud (France).

(c) Current research at the Centre Audio-Visuel

The Centre Audio-Visuel has done research work on films motivating expression. This research has two purposes :

(a) to measure the efficacy of a film in stimulating oral expression among children. The fact is checked and the nature of the film's motivating power defined.

(b) to determine the influence of film images on the creative originality of children. To what extent can the cinema, by presenting reality anew, strip it of its "ordinariness", succeed in breaking down habits of perception and thus obtaining an original and novel quality of expression ?

The method used will be based on the sociometric system of non-directed interviews. The children will be shown the film and be left to react free of outside interference. The oral expression must issue in pure and spontaneous form. A system of comparison with other forms of testing will make it possible to appraise the efficacy of the motivation film.

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(5) Details of this experiment are contained in an article in Education nationale, no. 7, 18 February 1960 entitled "Cinéma et apprentissage de la langue française".

To carry out this research successfully, specific experimental material was needed. As a result of close co-operation between the research and experimental production departments of the Centre Audio-visuel, three experimental films were made, namely, "La rivière", "O Soleil ! O Sommeil !", "Les Désoeuvrés". Each of these films is in a specific film style, i.e. descriptive, dramatico-descriptive, purely dramatic, which the producer, Jean Emile Jeannesson, defines as follows :

A - Purely descriptive style (unusual films, a new view of everyday reality ; the descriptive virtues of the film used to the full).

B - Dramatico-descriptive or atmospheric style (long shots linked in sequences ; there is no description or plot, atmosphere is everything).

C - Purely dramatic style (polyvalent films : expression and ethical education. Any texts used would be classified under the heading "emotions").

If strict experiments are carried out with these three distinct styles, it will be possible to lay the foundations of an audio-visual method of teaching expression, the further stages of which would be :
(1) to determine the use to be made of films,
(2) the production of films reflecting the same spirit. (6)

This research is concerned with oral expression and it should be mentioned that the Centre Audio-visuel intends carrying out other experiments with a view to studying the contribution of film to written expression.

Once these experiments have been made, it will be possible to decide whether the moving picture really possesses the power of motivation.

2. Commentaries in films motivating expression

The teaching of expression should be very closely linked with the psychology of expression. Any work on the subject assumes the prior existence of expression ; expression teaching is always dependent on the psychology of expression.

For our present purpose, this psychology has the three following characteristics :

(a) expression is always a reaction to an appeal whether external or internal ;

(b) it has reference to a system of signs ; it borrows its means from a pre-existing system or code ("the tribal vocabulary") ;

(c) it is nevertheless a more or less personal reaction (ranging from stereotyped phrases to the most novel verbal inventions).

These conditions sometimes conflict and involve the teaching of expression in contradictions. On the one hand, oral expression assumes that the individual possesses a battery of words and a collection of linguistic habits ; on the other, these semantic and syntactical acquisitions constitute a frame within which expression may become atrophied. In other words, the need for expression assumes a means of expression, but there is a danger lest the means of expression may exhaust the need for it.

The motivation film is faced with this general problem of expression teaching, because, over and above correct expression, it seeks to stimulate individual expression. The commentary of the expression film supplies the stock of words and those syntactical structures without which expression would vanish, but it also threatens to destroy the need for expression in another way by imposing a selected vocabulary and an arbitrary interpretation of the film concerned.

At this early stage of experimentation, all that can be done is to ask ourselves : how far does the film commentary restrict the picture's power of motivation ? Or, how far, on the other hand, may a particular type of commentary reinforce and intensify by other means this power of motivation? More precisely, is there a danger lest the commentary be a model which will interpose itself and cancel all or some of the suggestions stimulated by the film shots ? Is it true that children will be content to reproduce the text of the commentary (specific words or phrases) and there stop, thus producing nothing but a rehash of the commentary ?

In the presence of a commentary, therefore, children may be doubly fettered : by a film interpretation (restricting the power of the shots, by over-emphasizing a particular interpretation to the detriment of other possible ones) and by the vocabulary (restricting the power of original expression, through a store of words and phrases imposed upon the children).

These are only hypotheses, to be confirmed or otherwise by experiment. It is for this purpose that two sound versions of films have been made, the first containing only music and incidental noises, and the second including also the commentary.

If it should prove that the commentary is an obstacle to the self-expression of children, it would be necessary to seek another teaching technique, able to supply them with the vocabulary they need.

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(6) Simultaneously with this research, the same producer made another film dealing with the motivation of expression "La boue et le feu" and is preparing a memorandum for the use of teachers, in which he states that films "should be a springboard for the creative imagination of the pupil", a phrase which expresses clearly the new intention behind the production of films of this nature.

To conclude, we shall have to look beyond the limits of educational and oral motivation films and show briefly that this particular question has its place in a much wider context.

(1) In this study, only *verbal expression* (oral and written) has been considered. But the problem of expression and its motivation has a far more extensive field of educational application. There are other possible forms of *expression* (drawing, mime, behaviour, attitudes) and other forms of *motivation* (performance of an act, acquisition of a technique, etc.). The learning of the mother tongue takes first place, which is why this paper is entirely devoted to it, but that is no reason for forgetting other fields in which audio-visual techniques have a vital part to play.

(2) Within the strict field of motivation of verbal expression, only the *moving picture* has been considered. However, television, stills, and the tape recorder can contribute decisively to the teaching of expression. *Stills*, especially, in so far as they are basically discontinuous (the still is a permanent and multiple form of ellipsis), makes a continual demand upon the imagination in order that the gaps in meaning between two consecutive views may be filled. The *tape recorder*, by duplicating the expression and by transforming the voice into an object that can be observed at leisure and improved, has a very important part to play in the teaching of reading and recitation. These examples show that, besides the moving picture, other audio-visual techniques can help to promote the teaching of expression.

(3) The scope of this form of teaching should also be extended in a third direction. In this paper, the film has been considered only as the *opportunity* for expression; only its function of initiation has been considered. It may not be unrealistic to raise even at this early stage, within the school context, the problem of expression through the medium of cinematography itself. Some pioneers, notably in Belgium and Holland, have already got their pupils to make their own moving pictures(7), just as others make them take photographs (cf. the existence of school camera clubs).

In other words, the problem of teaching self-expression far transcends the highly specific branch discussed in this paper.

THE TEACHING OF CIVICS

by W.G. Beaton (Scotland)

As a school subject, civics differs in details of content, scope and treatment from one school system to another. It is probably true today, however, that at primary school level in most countries there is the same twofold aim: on the informational side, to acquaint pupils with the way in which the wheels of community life in their neighbourhood or country are kept turning; on the moral plane, to prepare pupils for the responsibilities of citizenship.

Despite this praiseworthy aim, few teachers or pupils are enthusiastic about civics; it is a difficult subject to teach effectively and good textbooks are conspicuous by their absence. Too often a civics lesson becomes a tedious excursion into local history and is associated in the minds of children, not with the workaday world in which they lead their workaday lives, but with the classroom and a textbook. Ideally, a civics course should present primary school pupils with the concrete - a portrait of their own village, town, city or district, together with thumb-nail sketches of such local functionaries as the policeman, dustman, postman and fireman. Unfortunately, many teachers have at their disposal neither the canvas, brushes nor paint with which to execute the portrait and sketches, and for lack of these civics becomes for children a dry-and-dusty account of municipal administration and public services.

In an attempt to solve this problem of dullness, and in response to a plea from the Advisory Council on Education in Scotland for a fresh, purposeful and dynamic approach to the whole question of civics instruction in Scottish schools, Glasgow Education Committee several years ago initiated an experiment in the teaching of civics through visual aids. They produced and made available to the city's schools twelve visual units, each covering a specific aspect of municipal activity and comprising a film, a filmstrip, a set of wall-charts and a chapter of a specially-written text-book.

Lively approach to a difficult subject: The results rather than the mechanics of the Glasgow Civics Scheme are pertinent here because they provide a useful pointer to the contribution visual aids in general and the cine-film in particular can make to a course of training in citizenship. At the end of six months, 34 headmasters were invited to report on how the scheme was functioning in their schools. Three reported unfavourably on its general conception and design; six expressed approval of the spirit and purpose of the project but confessed it had drawn only a lukewarm response from their pupils; the others stated that, in their opinion, it provided a lively and interesting approach to a subject difficult to enliven by traditional teaching methods. Their experience was that their staffs, with so complete and co-ordinated a battery of visual aids at their disposal, were able to inject into the teaching of civics something of the urgency and reality which the subject demanded. As for the pupils, the new approach was helping to imbue them with a keen and lasting interest in their city by answering pictorially and verbally such everyday questions as: Where does the Glaswegian live? How does he travel to and from work? How is the city kept clean and tidy? What does Glasgow offer its citizens in the way of cultural and recreational facilities? Who are the City Fathers, and what are their duties and responsibilities? How are the city's supplies of water, gas and electricity organized?

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(7) André Delvaux "Nous étions treize", Cinéma 57; B. Georgin "L'étude du cinéma, matière d'enseignement facultatif en Hollande", *Education nationale* no. 18, 19 May 1960

"A lively and interesting approach to a subject difficult to enliven by traditional teaching methods" - that, on the evidence of the Glasgow experiment, is what the film medium can provide for civics instruction in the primary school. Film is also an excellent means towards the ends which most civics courses have in view: imparting to pupils selected facts and figures about the neighbourhood community to which they belong, and preparing them for the time when they will shoulder the full responsibilities of citizenship.

At the informational level, doubtless the most effective of all teaching agencies is the direct experience of the field trip: there is no better way of teaching a lesson on local government, for example, than to allow a child to see it in actual operation at a Town Council meeting. Unfortunately, field trips are not always practical propositions, and the alternative to bringing the child to the Town Council meeting is to bring the Town Council meeting to the child. The magic carpet in this case is the film, which is so admirably equipped for blasting down one wall of the classroom and letting the wide world in. Civics, in the primary school at least, is so much a world of people - so much a story of how people live and move and have their being in a particular region - that its teachings are lost if these people are not made alive. And what better medium for bringing people to life in the classroom than film?

Influence on conduct and behaviour: On the moral plane, the film is excellently suited for reinforcing precept by vividly demonstrating practice. There must be few teachers, for example, who have not at one time or another during their teaching careers lectured their classes on the public nuisance we call the litter-lout - the individual who leaves in his wake wherever he goes a trail of discarded tram and bus tickets, soilded paper wrappings, empty cigarette cartons and whatnot. These teachers would probably be the first to admit that much more effective than all their stricture on litter-loutishness would be a brief film sequence showing a litter-lout at his thoughtless work and the mess he leaves behind him. In this instance, as in scores of others that must readily come to mind, the old saying that one picture is more effective than a thousand words holds good. Film can be made to influence conduct and behaviour as few other media can.

On several counts, therefore, there is an important place in primary school civics courses for short, simple, straightforward films which cover the various chapters in the story of a regional or national community. The teacher might well provide such supplementary facts and figures as he thinks necessary and, in particular, he might have to fill in a historical background which, for one reason or another, cannot be adequately dealt with by purely visual media. But film is the teaching aid which will help him in no small measure to foster among his pupils that spirit of civic pride and true citizenship which is the aim of all civics instruction.

PART III

TECHNICAL CONSIDERATIONS

A. PROBLEMS OF PRODUCTION

QUESTIONS OF COST AND CO-OPERATION

by G. Buckland-Smith (United Kingdom)

The main problem with all methods of educational film production is expense. It always has been so, but the problem has been accentuated in post-war years by the rising costs of facilities and materials and by the relatively high wages that must be paid to young, talented men and women from whose ranks film writers and directors are drawn.

The first stage in every film is the preparation of a "treatment", a document describing how the producer sees "in his mind's eye" the finished film. Before he can embark upon it he must be given two essential pieces of information :

(a) the audience for whom the film is intended, and

(b) the subject matter of the film.

(Ideally he would not be told at this moment how much the film should cost. In practice, it is just as well to give him some indication in order to avoid wasting his time on ideas that, however good, are going to be impossible because of the expense, e.g. sync dialogue, colour, etc.).

With this information, the producer can entrust to his script writer the preparation of the treatment, a paper setting out how the message of the film can best by means of film be communicated to the given audience. The preparation will involve research - reading up the subject, talking to experts, seeing things, becoming familiar with the audience, etc., travelling perhaps, writing, discussing ideas with the producer and sponsor - in other words, Time! Time is expensive. It is foolish to attempt to economize on this stage - the time spent on research and treatment writing is seldom wasted. The sponsor might easily be prepared to spend on the treatment perhaps 5% of the money that can be allocated to the film as a whole. He should, on the other hand, separate this contract for the preparation of a treatment entirely from the contract for the production of the film, so that he will be free to cut his losses should it prove impossible to produce a treatment wholly acceptable to himself and his educational adviser.

The second stage is the writing of a "shooting script" based on the approved treatment and, with it, an estimate of the cost of making the film according to this shooting script. This stage need not take as long, although the script may also entail research, travelling, etc., since it must be a very real document indicating not only what should be done to achieve each and every desired shot but what can and must be done. The script, in other words, must serve as a guarantee that all the necessary facilities have been, or can be made available and that all the necessary permissions have been obtained.

Naturally the shooting script must also be submitted for approval to the sponsor. On his part, however, the sponsor must accept the fact that this will be a technical document using the jargon of the film industry and he may find it not so easy to read as the treatment. The dialogue, if any, must be final but the commentary will still, of course, be provisional. (The final commentary can only be written after the picture has been assembled). The sponsor and his educational adviser should hesitate before criticizing the "construction" of the film. Many classroom films suffer from lack of construction and the blame can often be laid at the sponsor's door. The results are dull and uninspiring. On the other hand, too much "construction" is lost on young children who have not yet learned how to look at films. A "flashback" for example, may be completely unintelligible to children under 12 years of age. As far as possible, however, let us use the "magic" of the film in classroom films and get away from the illustrated commentary that is so familiar, and so dull. Give the producer a chance to make a film which will not only be good as a visual aid to teaching, but also as a film. There is an excitment in learning, many people carry it with them all their lives. The classroom film can help to convey this excitment to our pupils, a rôle which is perhaps more important than the mere conveying of information.

This is where the professionals come in - the producer, script writer, director, and camera man. The sponsor may see the "rushes", the results of the previous day's shooting, and he should certainly see the "rough cut", the first assembly of the picture material. Only then will he be able to see if the idea has paid off. Only later when the picture has been completed - fine cut, commentary recording, titles, music, sound effects, post sync perhaps of dialogue, dubbing, negative cutting, grading print, when all these subsequent stages are behind him - only then will he be able to show the film to its intended audience and judge whether the film will be successful. All this implies that he must have, and must be able to have, full confidence in his producer.

This applies to all films but more especially to cartoon films and puppet films which many people fondly imagine are more suitable for young children than for adults. With cartoon and puppet films it is all the more difficult to imagine from a script how the finished film will appear and it is all too easy in such fantasies to please the whimsies of the adult mind but to offend the ordered mind of the child.

Such films, too, are very expensive, because of the man-hours involved in their creation. And it is wrong to cheapen them by sacrificing smoothness of action, or by photographing string and glove puppets, as is so often done in television programmes.

Yes, expense is the main problem in all film production. Take a simple ten-minute film. Add together, say, three weeks' time for the writer, four weeks each for a director, camera man, and two assistants, six weeks each for two men in the cutting rooms, the additional labour required for electricians, a sound crew on location, the sound recording and dubbing in the theatre, the artists involved, the commentary - sometimes, with more ambitious films, a composer for the music, the orchestra and all the additional skills required at a music recording. *Add to this the cost of the* materials, the film and the processing, the opticals involved, the titles, the magnetic stock for dialogue, commentary, music, sound effects, dubbing. Add to all that the charges for equipment, the camera and all its accessories, a studio perhaps, with sets and properties, the recording theatre. Add again all the unavoidable incidentals, the transport, telephone calls, correspondence, the occasional showing of the unfinished film, the gratuities to be paid to lorry drivers and other "pick-up" extras.

On top of all this, think of the producer who lives with this film for, perhaps, six months to a year of his life and the business organization he needs to keep going. Only then do you get an idea of the cost of a film. Only then do you appreciate the importance of the professional approach, for in the above lists there are very few real economies that can be made. Film is expensive; it should be used where it can do the job better than any other medium. That still leaves a lot for film to do in education.

The good film, however, is cheap in the end. Take a film costing 20,000 dollars, with prints and distribution costs another 5,000 dollars. Seen by 2,500 people, that amounts to 10 dollars a head. That is exhorbitant. Seen by an audience of 25,000, the costs per head of audience are reduced to a dollar. That is still too much for many a classroom film. But a good classroom film can, in fact, reach an audience of 250,000 quite easily. Over its life of several years, perhaps, an audience of ten times that number : then the cost per head is infinitesimal compared with the job that it is doing.

Since expense is the main problem, the solution is to choose subjects very carefully, to make only those films that are essential, to make them well, and to see that they are properly and widely used. In brief, to make a film about which every teacher feels : this must be used!

The rôle of the teachers : Success in the making of a teaching film depends to a large extent upon co-operation between two men - the teacher-adviser and the film producer. Each approaches the task from an entirely different angle - the one is concerned with content, the other with presentation, one as a film user, the other as a film maker, one has a literary approach, the other a visual - each is, or should be an expert with practical experience in his own field. Yet the two must be able to work well together if the result is to be of any value at all. There is a difficulty right at the start. Although the producer may have little or no knowledge of the teacher's job and will see no merit in claiming any, everyone claims to know something about film. On the other hand, one of the hardest jobs of the film producer is to assert for himself some special knowledge in his own field!

Ideally the two should come together right at the beginning of the venture, the teacher-adviser armed with the knowledge of what is to go into the film and of the age-group and experience of the pupils for whom the film is intended. He should not, at this time, already have written the commentary. Nor should he be armed with his favourite textbook and demand that the film be nothing more or less than an animated illustration to go into it.

From this point on, he should be content to advise, leaving the technical jobs of writing, the treatment and subsequent script, of shooting and editing the film, and of writing the commentary, to the producer and his film technicians. Of course, he must be firm about inaccuracies, of course he must insist on a standard of presentation which he knows to be suited to the intended audience, and, of course, he is free to comment on both visual presentation and oommentary as he chooses. But he must give the producer credit - I am assuming, of course, that the producer is one who cares about educational films and is not just doing the job because he cannot get into features or television advertising - he must give the producer credit for wanting to make a film and not just an illustrated lecture.

The teacher-adviser must have imagination - to grasp what the producer is trying to do, to visualize from a written treatment or script how the finished film will appear on the screen, to hear how the commentary, written down on paper, will sound when spoken by a professional commentator, and to dream how a classroom of children will react to the final marriage of picture, words, noises and music.

He, the teacher-adviser, must have time, too - time to read the treatment not as a document but as an indication of a film, time to read and re-read the script until he can talk about it as a film.

Time, too, to realize that the producer and his script-writer will have spent much more in time discussing those very points which he, the teacher, will be tempted to comment on after one cursory reading. Nothing can be more infuriating to a film producer who has spent hours, days, weeks perhaps, over a particularly knotty problem of presentation than to have someone come to some arbitrary decision, someone who has obviously given it no more than a moment's consideration.

Courage and humility : He, the teacher-adviser, must have courage. Courage to believe that the film can not only be a help to teachers but also to teaching. To believe that a film can sometimes - often should - break with accepted teaching methods ; that a film must never bore its audiences, may sometimes entertain, and can even - at its best - inspire. Courage, too, to realize that every film is judged as a film by its viewers against the standards they have formed for themselves from their visits to the local cinema. That a classroom film must, too, be of the same professional standard ; that it may not have less first-class writing, direction, camera-work, and editing thoughout, and cannot eschew the use of music, sound effects, imaginative treatment - even humour - when such are required.

Above all, the teacher-adviser must have humility. He will find any producer who is trying to make a living out of making sponsored films, humble enough on his side. But he must learn, the teacher, that there are some things that even the most humble producer cannot be expected to do - and save his soul. For example the concept : "The climate in England is temperate" is, in itself, simple enough, and no producer is going to have difficulty in choosing or shooting a scene, one scene, to convey this concept dramatically, visually and effectively. But should the teacher-adviser insist on qualifying this concept, e.g. "The climate in England is temperate, the rainfall is seldom more than 30 inches a year, but there can be extremes of hot and cold and occasional violent storms" he may find the producer digging in his heels and refusing to do it in less than a sequence. Film making, like writing, is a discipline. It has certain rules which must not be disobeyed, it has conventions that have come to be accepted, and techniques which have been developed and proven over the years. A film producer, even the most experienced, might find it difficult to define the rules or explain the techniques but he dare not ignore them - and the teacher-adviser is well to heed him when he calls them to his defence.

On one thing, however, the teacher must be adamant. The teaching film differs from most other films in this respect - that the audience for the film is far more narrowly defined. A classroom film, like a school broadcast or a textbook, must be directed towards the age, intelligence, and experience of the class as carefully as a teacher would choose his own words when addressing the class - and I do not mean only the commentary of the film, I mean the film as a whole. This is a difficult task to set a film producer and the teacher-adviser must see in it the main contribution that he can make to the production of the film. The younger the pupils for whom the film is intended, the more difficult it is to make the film, the more vigilant the teacher-adviser must be. From the treatment stage to the script, through the editing of the film to the recording of the commentary, right through, in fact, to the dubbing of the final sound track, he - above all of those engaged in the making of the film - must endeavour to see the film as through the eyes of the average pupil and he must be adamant in seeking the right tone, the right approach.

Even when the film is first shown, he may have to defend his views against the critics, his own colleagues perhaps, who will all be adults and looking at the film through adult eyes. Only when the film is accepted by the audience for which it was all along intended, will he be able to feel himself justified.

CAMERA TECHNIQUE

by Hanns Belstler (Federal Republic of Germany)

School-films are an educational and cultural aid, but they are not "complete lessons in tins". A film can only be of educational value if it is adapted to the age and stage of development of the pupil, to the aims and requirements of the teachers, and also to the general laws and creative possibilities of the film and film techniques.

In the case of the school-film, the cultural and educational aim is of primary importance. The means of portrayal and the effects peculiar to the film must be made to serve educational ends. The following points of view are essential and should form guiding principles when considering the pictorial composition of a school-film :

1. The school-film must primarily show actions in which movement plays an important part. While wall-pictures and slides, blackboard-drawings and book-illustrations depict static phenomena, the film observes and shows movement-sequences and living processes - i.e. dynamic phenomena. By means of X-ray and micro-photography the film can reveal mysterious living processes, by means of slow and quick-motion shots it can demonstrate unusually slow and fast processes. Documentary authenticity and veracity must be demanded for the representation of all movement-sequences, whether the processes are to be rationally comprehended or emotionally experienced.

A film can, however, never be a simple copy of reality. Moving processes consist of complicated details and varying stages. In the film version the actual processes must be simplified and summarized in order to show the essential factors. But the simplification must not lead to a dry, schematic presentation. The subject-matter and process must always be shown in connexion with the environment and milieu. The realistic character of the subject must always be preserved.

The realistic effect of the film can be heightened by using colour and original sounds.

2. The film is able not only to depict the movements of the subject, but also to direct the spectator's gaze and to point out particular phenomena and processes by means of the movements of the camera itself. The camera can follow a subject, explore its contours, and also, by travelling and panning, convey an impression of space. Movements of the camera are also able to make the mood, temperament and emotional expression of a person clear and visible. These movements cause the onlooker to "stir inwardly"; they produce a particular emotional state. The onlooker experiences the action of the film.

In school-film these movements must not be too rapid or brief. Travelling or panning shots must be made slowly, continuously and in a calm flowing manner, with moments of rest at the beginning and end of each movement. Long and slow camera movements are, it is true, in themselves restful, but at the same time they intensify the spectator's inner participation.

3. An essential element in the pictorial composition of a film is the focusing. By this is meant the focusing of the camera on the subject to be filmed.

The focusings are grouped as follows, according to the size of the area covered by the camera:

Long shot: complete shot of the whole set or location.

Medium shot: section of the whole set taken from somewhat nearer.

Close-shot: shot of a subject, or detail of the set, taken at short range.

Close-up: shot of a very limited section, where persons are concerned, part of the face or body, e.g. eyes, mouth, hand, finger.

The long shot gives a survey of the scene of action. It is used to localize the scene. In school-films, such shots should be used sparingly. If used too often they are boring and have the effect of a series of slides or picture-postcards. The close-ups and semi-close-ups are most important. Generally they correspond to the way in which we see most of the events and movements in our daily life.

In school-films they should predominate numerically. The close-up can reveal a person's innermost emotions. Hate, suffering, benevolence, and love can be reflected in a person's face. For this reason the close-up can move and excite the spectator intensely. It should therefore not be used too often - preferably only for the climaxes in the action.

The effect of the individual shots mainly depends on their length. It is of prime importance that a shot should remain on the screen until the pupil has had time to take in its content. He needs much less time for a single object than for a wide, variegated landscape or for subjects which are outside his common field of experience.

Shots which are too short and which change too abruptly create indistinct and confused impressions, leading to vague and false notions; they are not easily memorized, and cause nervous restlessness and rapid tiring. Unmotivated time and space jumps are not understood by younger pupils, have an unrealistic and unconvincing effect and should be avoided wherever possible in school-films.

The transition from one shot to the next must not be arbitrary, but must take into consideration the way in which a pupil of the stage of development in question sees and experiences the subject-matter and the emotional and rational effect which is intended.

In order to preserve clarity and intensify the effect, the shots are usually employed in the following order - long shot, medium shot, semi-close-up, and close-up. Intermediary stages can be fitted in easily.

4. A series of shots showing an uninterrupted process or action forms a sequence. We make a distinction between short and long sequences. Each sequence forms a unit within the whole composition and must be complete in itself. This can be achieved through suitable transitions or through short fade-ins and fade-outs at the beginning and end of the sequence. The unity and educational effect of a school-film depend on an intelligent arrangement of sequences, which must be constructed with careful attention to clarity of content and composition. Shapeless series of moving pictures make a restless and distracting film.

Events, memories and dreams which belong to the past can be brought into the stream of present events by means of so-called "flash-backs". For younger pupils "flash-backs" are difficult to understand because they destroy the spatial and time-continuity of the film action. "Flash-backs" should therefore be avoided as far as possible in films for 10 to 14 year olds. If they are necessary, the transition to an earlier moment in time must be prepared for and made comprehensible by a fairly long fade-in and by optical and acoustical indications.

Sequences with contents which are spatially separated can be joined together and linked up by means of fade-ins. Fade-ins always indicate that the scene has changed or that time has passed. It is true that they provide smooth transitions, but they should be used with caution for they easily lead to formalistic "ticking-over" and frivolity.

The significance and value of a school-film lie in its cultural and educational content which must be effectively translated into the film-medium according to educational principles.

The content of the film must be homogeneous, dynamic in character, and must deal with a clearly defined lesson-topic.

It must reject all that is subsidiary or non-essential, and must direct the pupil's undivided attention to the topic dealt with in the film. It must not distract, but must aid the pupil to concentrate and collect his thoughts. It should enable him to recognize what is essential and typical in the moving pictures, to find connexions and relationships, to sharpen his wits and his power of judgement and it should stimulate his mental activity.

THE USE OF SOUND IN EDUCATIONAL FILMS

by F. Schmid (Federal Republic of Germany)

During the past ten years the use of sound films in schools has spread rapidly. It is an important task to improve the quality of the sound both in its technical capability and intellectual impact, in order to achieve the most effective audio-visual aid possible.

The sound film undoubtedly has more impact than the silent film. It demonstrates, via both the eye and the ear, the optical and acoustical phenomena of reality. The use of speech, sound-effects and music gives the sound film greater artistic possibilities. These are only a few of the qualities which place it higher among the audio-visual aids than the silent film.

The question then arises, what type of sound film is most effective in teaching and education ? In answering that, these points must be taken into consideration :

(a) The sound film cannot say all that is to be said about a subject, but can only demonstrate what is comprehensible through seeing and hearing. The other aspects of the subject must be dealt with by other means. If we recognize that the sound film is not itself a lesson but part of the teacher's equipment we shall avoid overloading it with informative material.

(b) A clearly-constructed pictorial section is the backbone of an educational sound film. Exception may be possible but, if the sound itself is of primary importance, tapes or records should be used for demonstration rather than films. The planning of a sound film should begin with the pictorial section. Sometimes a lecture has formed the basis of a production, and the loosely-connected pictures are only illustrations to it. This type of film is bad. A good visual treatment must therefore be the first step in production.

(c) The rules applying to educational sound films differ from those for the feature or general documentary film. We must find out what type of synchronization is most effective in school. Pictures and sound should harmonize. The sound should be limited to what is absolutely necessary. Superfluous sound elements confuse and tire the children. On the other hand all the possibilities of sound should be exploited, in order to attain integration of instruction and impression.

(d) In educational films the sound should be genuine and true in the scientific sense. Similarly, the pictorial part must be in accordance with reality.

Let us consider the three most important elements of the sound in films : sound effects, speech and music.

Sound effects play an important part in educational films. They help to round off, on the acoustic side, the information which we receive from the pictures. Sound effects can also convey the athmosphere in which a particular action - e.g. in a rolling-mill - takes place. In nature films, natural sounds give a more intensive impression of the life and behaviour of animals.

Moreover, sound effects - like music - are internationally comprehensible and can therefore be used unaltered in versions in every national language.

On the other hand, in order to obtain films which fulfil their educational purpose well, natural or technical sounds should not be reproduced with mechanical exactness, as we find them in reality - that is to say without discrimination and balance. For example, it would be unbearable if, in a film about the production of rails, the intensive noises of the machines were to be heard continuously and without differentiation. The children would get acoustically overstrained, would quickly become tired and would lose interest in the process. We can only attain a sound track which fulfils psychological, educational and artistic demands by selecting and differentiating characteristic sounds.

When talking about speech in sound films, we must distinguish between dialogue and commentary.

Speech is a means of expressing thoughts and feelings. For this reason dialogue in films is often linked with close-ups of the speaker's face. In this case lip-synchronization is necessary. It makes the production of other language versions particularly difficult.

The following rules for the use of dialogue should be observed :

(1) In educational films the dialogue should be restricted to a minimum. If the pictures are good, clear and expressive, very little speech is necessary. This should especially be borne in mind when films for international distribution are made.

(2) If dialogue is necessary in such films it should be spoken in medium shots or off-stage.

The rôle of the commentary

Varying opinions exist about the function of the commentary in educational sound films. Some teachers reject it entirely. They contend that the teacher should explain the film in words suited to the mental standard of his class. Others are in favour of a commentary because they believe that a commentary carefully formulated by experts and made to fit the pictures explains the film better than a teacher who improvises during the performance. The truth probably lies between these two extremes.

There will always be films in which a commentary is a genuine educational help. The following principles may perhaps be suggested for the use of commentary in educational sound films.

(1) The commentary should not itself give a complete lesson. It should only help the pupil to understand the picture.

(2) The commentary is not intended to bridge over gaps or weaknesses in the pictorial section.

(3) It should be as short and pregnant as possible.

(4) It need not explain facts which can be ascertained from the pictures.

(5) But it should concentrate on the actual contents of the film; otherwise the children may ignore it.

(6) The text of the commentary must be suited to the age and comprehension of the children for whom it is intended.

(7) The commentary should not be overloaded with information. By preparation and evaluation the teacher can do a lot to help the children to understand the film.

The use of music

In the past some producers have used continuous illustrative and stimulative music in educational sound films. They say, children have become used to it through the commercial cinema, and that it heightens the impact of the film.

Many teachers, however, disapprove of this kind of music in educational films because it distracts and tires the pupils.

Here are some ideas concerning music in educational films :

(1) Music in an educational film of the documentary type is usually justifiable if it has a natural connexion with what is shown in the picture (e.g. original music for dances, cult ceremonies or when instruments are being played).

(2) However, there are also educational films or parts of films in which an emotional rather than a rational effect is sought. In such cases musical accompaniment can increase the artistic and educational effect of the film.

(3) Music can also close acoustic gaps with symbolic and rhythmic sound effects.

(4) In art films contrapuntal music can intensify the atmosphere and weld picture and sound to a deeper artistic experience.

There is an almost unlimited field for using sound and music in educational films, and the development of them should not be hampered by rigid principles. Preference should be given as a matter of course to those films which succeed best in bringing their subjects home to the children.

B. PROBLEMS OF UTILIZATION

PROBLEMS OF EQUIPMENT

by Georges Lebas (France)

Film equipment of good quality and easy to handle, and the equipment of the classroom generally, can make a valuable contribution to the success of the teaching film. Nothing is more disheartening than long and difficult preparations or operational breakdowns during projection. The resulting loss of time is all the more serious when the film is short. It is therefore necessary to provide equipment suitable for film projection in the classroom at the lowest cost compatible with the necessary minimum quality. Such equipment can be divided into two main classes, permanent and mobile.

Permanent equipment

The permanent equipment will include blackout material for the windows, a screen, a sound column, electrical equipment in good order. It should be observed that the equipment used for moving pictures can also partly be used for the projection of stills. The windows can be blacked out by thick or dark curtains hung on curtain rods. The window frontage is important in blacking out the classroom. The sun is at its most troublesome early in the morning or in the late afternoon, being then low on the horizon. This observation holds particularly for equatorial countries where the sun, when at its zenith at midday, penetrates the classrooms hardly at all. Windows should face north or south and their upper parts should be fitted with projections so as to give shade.

The best form of screen

Wherever possible, the screen should be a permanent fixture, and a movable screen should be reserved for occasions when displacement from one classroom to another is unavoidable.

The most suitable screen is a wall screen that can be rolled up in a box fixed to the wall, to protect it from dust. It can be attached above the blackboard and unrolled in front of it.

The most suitable base length is between one-fifth and one-sixth of the length of the classroom. For film projection, the screen can be rectangular, the ratio of height to breadth being 3:4. However, it should not be forgotten that the same screen may also be used for the projection of stills, in which case it should be possible to show both vertical and horizontal views. It is, therefore, wise to select a square screen, which can be partially rolled up for showing films.

The material of the screen is of great importance. In general, screens can be divided into two main categories, mat screens with a wide area of radiation, reflecting the light received more or less equally in all directions, and directional screens, in which the light reflected is concentrated in the cone of an angle more or less open at the apex. This second type of screen gives a lighted image for all watchers situated within an angle area of 30 to 40 degrees at the apex, i.e. 15 to 20 degrees on each side of the perpendicular rising from the centre of the screen's surface. Outside this angle, the luminosity of the image falls considerably. Beaded screens are of this type.

Accordingly, white diffusing screens are to be recommended for classroom projection so that pupils sitting at either end of the front rows will be able to see an image as luminous as that seen by pupils in the centre of the classroom.

It is also possible to make a good diffusing screen by painting in dull white the part of the wall situated behind a blackboard consisting of two hinged panels and opening like a two-leaf door to reveal the screen. A new coat of paint every year is sufficient to keep the screen perfectly white.

There are also metal screens, the characteristics of which vary between the two types described above, but they are too brittle to be rolled up.

For reference, mention should also be made of translucid screens, permitting of background projections, which are still more directional than the beaded screens referred to and are used only for cameras enclosed in a piece of furniture.

Loudspeakers

It is advisable to obtain a loudspeaker of the sound column type, attached above the screen and suitably inclined towards the classroom. These sound columns consist of several loudspeakers generating a sound wave approaching a plane wave which makes it possible to compensate partly for the defective acoustics of classrooms. The electrical impedance of the group of loudspeakers should be perfectly adjusted to the exit impedance of the amplifier attached to the projector.

As far as possible, classrooms should be adapted acoustically so that the reverberation period should not be too great. This period affects the intelligibility of the commentary and it should not be forgotten that easy understanding prevents auditory fatigue which may lead to diminished attention on the part of pupils.

An effective way of improving the acoustics of the classroom is to cover the ceiling with perforated tiles specially designed for the absorption of sound.

The electrical wiring should include a special line to feed the projector and capable of carrying an intensity of ten amps without any appreciable fall in tension. This precaution is necessary because of the significant fall in the lighting capacity of incandescent bulbs as soon as the tension fed to the bulb terminals falls, if only by a few volts, below the nominal tension for which they are designed. A loss of light amounting to from 30 to 40% is not uncommon if the section of electric wire used is too small.

A positive and negative booster is advisable to compensate a possible fall in tension if the existing installation is inadequate.

Light switch control at two points of the classroom is necessary and one of the switches should be near the point at which the projector is placed.

This arrangement will enable the teacher to switch the lights on and off without calling on the assistance of a pupil. The centre of the panel constituted by the back wall of the classroom is the best spot for the switch used during projection. A special short circuit on the projector feed line is useful in order to avoid plunging the class into darkness in the case of a short circuit, which is always possible in an electric wiring system and also because of the high intensity required for the projector to do its work.

Mobile equipment

The mobile equipment necessary consists of a projector, a projector table, a film splicer and a film rewinder, although the last is not essential, since film can nearly always be rewound on the projector.

Until now, 16 mm. film has been the only size used for schoolroom projection.

There are two different types of projectors for this size, namely silent and sound projectors, though the distinction is not absolute. Many silent projectors are so constructed that they can be used for sound projection by addition of the necessary parts.

Only portable apparatus is suitable. Lightness is essential as it facilitates projector handling.

Sound projectors are usually packed in two cases, one containing the projector and the other the loudspeaker (1) and various accessories. A cable with special points links the amplifier with the loudspeaker.

These projectors should be able to take standard 600 m. reels and access to the loading mechanism should be easy.

On this type of projector, whether silent or sound, the intermittent feeding of film is generally done by means of a claw. The projection rate is 16 pictures per second for silent films and 24 for sound films. Sound projectors are made so as to be able to project silent films at a rate of 16 pictures per second by means of a speed-changing device on the claw mechanism. They are all provided with incandescent bulbs of 500, 750 or 1,000 watts which makes it possible, under suitable conditions, to light up a screen measuring from 1.5 to 2.5 metres in width. To observe the recommended ratio of 1:5 between the width of the screen and length of the room, the projector should be supplied with a 50 mm. focal distance lens.

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(1) Can be replaced by a sound column fixed permanently.

The bulbs and the film track are cooled by a blower.

Some models are equipped so that the film can be reversed and halted at a particular picture. This makes it possible to return to an interesting shot or to observe at leisure a particularly important one. The interposition of a catathermic glass, constituting a filter for heat rays, avoids burning the film.

Since all standard 16 mm. copies distributed by teaching film libraries are equipped with optical apparatus, projectors must be equipped with an optical sound reproducer.

This reproducer should be carefully constructed since the steadiness of the unrolling process of the film depends on it. The conception of the whole, i.e. amplifier, optical reproducer and loudspeaker, is also of the first importance to the quality of the sound reproduction, which is conditioned by the width of the band of frequencies reproduced (transfer response), the distortion caused by the reproduction chain as a whole (harmonic distortion) and background noises (dynamics).

In order that the apparatus shall remain in good order and function normally, it must be specially treated in hot and wet climates, when all electric parts and circuits should be impregnated with special varnishes (tropicalization).

It is therefore important to choose the projector carefully, not only so that it will provide clear pictures and satisfactory sound, thus enabling the documents shown to be demonstrated to the best advantage, but also to avoid fatigue to children from poor projection.

Some projectors include a tape-recorder and reproducer constituted by the addition of magnetic heads similar to those used on tape recording machines.

This device may form an integral part of the projector, or a separate and adjustable unit. It makes it possible for a commentary with a sound background to be made, for the original of a film to which a magnetic track has been added after development of the film.

Recording is done by a microphone, gramophone or tape recorder. For that purpose, the amplifier is fitted with microphone and pick-up plugs.

The reproduction of a film with a magnetic track is obtained by a simple switch-over from the recording to the reproduction position.

Finally, the equipment should also include a rewinder, if rewinding cannot be performed on the projector, and a film splicer. The latter is essential for repairing a copy of a film accidentally torn during projection or for repairing a flaw in the film.

FILM DISTRIBUTION

by B. Georgin (France)

The use of films is limited by the number of films made, which is a matter of time, by the available funds and by production possibilities. However, in primary education, a teacher who has a projector available and sees his pupils continuously, has an advantage over the secondary school teacher. While he has to follow a strict teaching plan, he can easily deviate on details, if he wishes to use films and audio-visual media in general in support of his teaching.

However, there are still a number of practical obstacles to the use of films. Some of them are connected with the projector, other with the supply of films.

When films are made by a government organization, they can be supplied to schools free of charge. In countries where films are a matter of private enterprise, they have to be approved by education committees. Their purchase is then subject to contracts with the makers. Their use is subject to special rules. The price of black-and-white copies is high while that of colour films, which are more and more sought after, not because they are fashionable or more entertaining, but because colour enables certain details to become clearer and often contributes to greater reality, are still more expensive. It is difficult for schools to pay for educational films, even "shorts". To buy even a single copy of a few films which would be used in general only a few times every year is far too costly an operation. Even in countries where films are supplied to schools free of charge, the number of copies cannot be multiplied sufficiently to enable every school owning a projector or in a position to use one temporarily to obtain a complete collection of films made.

The supply of copies

The existing method of educational film production is therefore best suited for the lending of copies to schools possessing a projector. Such loans assume the existence of a central film library. In addition, efforts are made to establish local film libraries where the demand justifies it. Generally speaking, the number of these should be increased so that the films are brought as close as possible to their users, transport costs reduced and, with them, the period during which films are unused.

Whatever the method of distribution, an increase in the number of copies depends upon funds available to buy them. These should not on any account be left to chance, but should be based on the needs of users. Any lending organization can get an exact idea of these needs by following at first hand the flow of requests and its own possibilities of satisfying them. It is sufficient to make a daily note of unfulfilled demands and to study the result from time to time. In this way it is easy to assess the number of copies that the lenders should have. Too many copies of little used films should be avoided, as this would mean fewer copies of those in great demand. However, as schools always ask for the same films connected with their curricula at the same time, the problem of supplying copies is still one that is sometimes difficult to solve in a completely satisfactory way.

Consideration must also be given to the fact that most copies of films are on the shelves of the film libraries only for very short periods during the school year. They are in constant circulation. If projectors are properly looked after and films are shown by teachers skilled in projection, the amount of deterioration is reduced. All the same films wear out quickly. The life of copies can be prolonged and the number of times they can be shown increased if they are varnished, enamelled or tanned in special laboratories before they are circulated and if they are renovated when they become brittle or contain surface scratches.

While the increase in the number of films depends on the material and financial means available to producers, that in the number of copies depends solely on the funds available for purchasing them.

Usually, the responsibility for the production and loan of films is delegated to a single service. Some bodies even lend projectors, which they themselves repair and service as well as films. In some countries production and loan services are separate and films made by production departments are sent to film libraries afterwards.

In the latter case, it is vital for the film-lending libraries to be in constant touch with production departments. Lending libraries should be represented on film-licencing committees. Moreover, they should keep production services informed about the opinions and wishes of users. Opinions and wishes can be sought by enclosing a form in the container of every copy lent out. On it, the borrowers would supply information of a statistical and educational nature. The statistics supplied would make it possible to measure the exact number of times any film has been projected, and the number of classes and pupils that have seen it. On the same forms, borrowers could report on the interest shown by the pupils, the benefit derived, give their own opinions of the film, make suggestions about it, and suggest films they would like to see made. If this information is carefully collected, analysed and assessed, production services would be assisted in the future development and direction of their productions, in altering the form and nature of their films, in adapting them more to the needs of schools and in differentiating them according to the level of education.

Films may be lent free of charge, single copies hired out, or they may be lent to schools on the basis of an annual subscription, the amount of which is fixed in accordance with the number of classes and paid for out of funds provided by government or local authorities.

Rural "circuits"

In towns with a large number of schools, municipal departments can act as intermediaries between lending bodies and schools. In the country, schools often form themselves into "circuits", which use a single projector and a common programme. The borrowed films go from one school to the next at the same time as the projector, but in case of damage, those responsible are difficult to find, as the films are not checked after each performance.

Elsewhere, a teacher freed from classroom duty travels through a school district with a projector and films, and sometimes with a special mobile film unit. These tours help to introduce teaching films and increase their circulation. But schools can only be visited at more or less long intervals and, however well chosen the films may be, the conditions for their projection are far from ideal. Instead of showing a suitable film made at an appropriate time, long sessions are held during which the tendency is to show mainly educational films. In spite of all precautions, the competence of the itinerant teachers and their efforts to show and to comment on the films, the show becomes more of an entertainment, which both teachers and pupils welcome as such.

Film-lending libraries contain a wide variety of films for all levels of education and teachers need to be guided in their choice by a catalogue which provides them with the necessary information, i.e. the subject, the kind of film (silent, sound, black and white, colour), the projection time, the level for which the film is intended as determined by film licensing boards. Due to the fact that they have not consulted these catalogues, teachers ask for films which are quite unsuitable for their purpose and, by a mistake which aggravates the harmful effect of this use, bring together to see any film all the pupils of the school, whatever their age, their intellectual development and their knowledge.

The teacher is not always acquainted with the film he wishes to show. He does not always have time to see it, as he should do, before it is shown. It is therefore necessary to supply analytical, descriptive and explanatory notes with the films lent.

New forms of teaching films

It has been assumed that television might usefully promote the dissemination of teaching films and relieve the burden on film-lending libraries. Television sets are less expensive than film projectors. Television films can be seen by a very large number of schools at the same time. It would be rash to try to estimate the saving that the use of television in this way might effect, in view of the number of schools and pupils who might see the films. But television has its own specific technique. Its value lies in its direct broadcasts which, it is true, sometimes make use of fragments of film. It cannot be devoted mainly to the projection of cinematographic films. The teacher feels less free in relation to television images, which are in a sense thrust upon him. He prefers to project a film he has chosen himself and which he can show more than once. Television can certainly bring about the wide dissemination of education in general and of the teaching film in particular. As time goes on, the respective spheres of television and the teaching film will no doubt be defined. The difficulties of circulating films and the cumbersome system of lending have led experts to seek new forms of film teaching. There are plans, for instance, for establishing an 8 mm. branch in addition to the standard 16 mm. film branch.

This will necessitate the construction of strong, lightweight and cheap projectors, capable of projecting images sufficiently large and clear to be visible to all the pupils in a class and, if possible, without the need of blacking out the room.

In addition, it will require a supply of reasonably cheap copies of films to schools. In this way, every school will be able to build up a small collection of essential films at low cost, which could grow from year to year and be at the constant disposal of the teacher in the same way as filmstrips and slides.

If we want the teaching film to fulfil its true mission and to function to the best possible advantage, it appears necessary to plan forthwith for two branches : (a) 16 mm. sound films lent by film libraries and (b) short and very short 8 mm. films owned by the schools.

C. PROBLEMS OF EVALUATION

EVALUATING EDUCATIONAL FILMS FOR PRIMARY SCHOOLS

by Dr. Harry Alleyn Johnson (U.S.A.)

Introduction

Evaluation fundamentally is a process of arriving at an opinioned judgement based on a collection of evidence as related to a set of objectives. Within this formula a good deal of research has been conducted on the use of the teaching film. In this chapter, based on research in the U.S.A., I will draw special attention to some film evaluation criteria, some techniques for evaluating films and will underscore this thesis with specific research findings.

The educational film, as opposed to the textbook or the teacher's lecture, is like a movie star or an opera singer. It is always on trial. It is judged by those capable and those not capable of adequate judgement. Often many non-scientific processes are used to evaluate its effectiveness. It is therefore absolutely necessary to consider many factors when evaluating the results of an instructional film.

Careful planning of film use will greatly improve the effectiveness of the teaching film in terms of the information acquired and the retention span. Equally important are the instruments by which a teacher will measure the results of film use. Consideration must be given to the approaches to utilization. Research has proved that intelligent planning, utilization and follow-up reap greater effectiveness with the learner.

There is widespread use of measurement symbols as evaluation instruments. To facilitate evaluation, we often draw up and rely on an instrument which can do the job in a time-saving manner. We often, in our zeal to streamline the evaluation of a film, make the instrument quick and easy, using such symbols as yes or no, poor, fair, good, very good, excellent, satisfactory and unsatisfactory, and so on. As helpful as these quick answers are, they all too often do not get to the very basis of evaluation and at best, supply very broad generalizations. The objectives of the teacher should be considered, such as : What did the teacher really expect the film to do ? What approach did the teacher use in teaching with the film ? Answers to such questions as these must be brought to bear on an evaluation instrument, to say nothing of the importance of the physical environment which exists when children are viewing the film.

There have been countless instruments drawn up for evaluating the instructional film and some for evaluating results. However, in total assessments of results, teachers would be wise to utilize a variety of measurements : pupil observations ; their attitudes and reactions, their questions and evidences of maturation, written tests, discussions, teachers' records and pupil follow-up work activities. Behaviour change is perhaps the chief objective of effective teaching, therefore good instructional films should be wisely selected and integrated into the total curriculum with a variety of teaching tools. Total assessment of a film's real contribution therefore cannot always be measured immediately after use any more than one can arrive at total evaluation of the effects of one teacher on a child's total growth.

A policy approach to film evaluation

Preliminary appraisal by ministry, school, library or technical people and teacher groups is found to be a desirable first step in the selection and evaluation of primary school films. There are answers to questions which should be known about films for primary schools, and which should be considered before the classroom teacher finally selects films for specific lessons. A selection policy which directs the screening and selection of primary school films by an officially-selected group should be the guiding instrument for future film selection by classroom teachers. Staying abreast of current trends in film production becomes a necessity for members of this selection group. This can be done through professional organizations, which provide reviews, summaries and articles in professional journals, professional meetings, and conferences, attendance at specialized courses and summer seminars, evening courses and extension courses, previewing films from various film distributors, and educational centres. These are but a few of the ways committee members might stay abreast of the tremendous number of primary films now reaching the commercial market.

A preliminary appraisal committee would avoid the securing of primary school films which are found to be, after purchase, useless. After such preliminary screening the classroom teacher may choose films with greater speed and more assurance of their value and adaptability for teaching. Such a committee as suggested would serve many other purposes also. Teachers would call upon this group to suggest films in special categories that it knows to be of exceptional quality. The preliminary evaluation of all films, and especially "free" films, can save the less-experienced teacher time and unwise selection and at the same time provide a better selection of films for all primary schools.

Criteria for film evaluation

Screening and selection of instructional films in primary schools must be guided by a set of criteria or guidelines by which the investigator will be directed. These criteria must set the stage for any serious assessment procedure. These criteria have their roots in the foundations of teaching and learning. In terms of student needs and the development of concepts to meet these needs, one approaches these criteria listed below with varying degrees of emphasis :

Was the film, in every respect, authentic and did it give a true and unbiased picture of the problem or situation at hand ?

Note should be taken of the authorities associated with the film. Well-known and respected authorities are some indication of authenticity of the subject treated.

Did the film contribute content or clarify content not otherwise covered by other means ? That is, did it add anything or could we have arrived at the present level of accomplishments without having the film ?

The thinking behind this question is based on the principle that we only use a teaching film with primary children when that film can make a very specific contribution. If what the film has to offer can be done by other less time-consuming, less expensive or even better methods, then there is no justification for using the film.

What of the maturity level of the film ? Was it advanced enough to offer a challenge, to advanced, too elementary ? Was it at par with other teaching tools and activities associated with the work being performed ?

It is not enough to know that a primary film covers the subject-matter at hand, but the teacher must know that it, like textbooks and the teacher's vocabulary, is suitable to the grade level of the learners. For this reason it is advocated that teachers themselves must preview films for this purpose alone.

Did the teacher use the film to its maximum possibilities before evaluating the results ? That is, were the youngsters properly introduced through an activity, was there a reshowing of the film or part of it ? Was follow-up planned after the film use, etc.?

When teaching with films it must be remembered that the film and the teacher are like partners. The best results are gained when the teacher has selected a good film and has given consideration to the wise use of it. Integrating the film into the core of the teaching programme and using it as a continuation of a series of experiences will assist the learner in integrating the contents of the film into the total learning experience. This will depend on how a teacher uses the film.

Did the film stimulate learners to do something ? Was there intellectual stimulation as a result of the film use ? Were the learners motivated and did the resulting action take place either actively or through an inquiring mind ?

Primary school films can modify motivation, attitudes and opinions. A film should be selected and used with the purpose of providing stimulation for action. It should not always give the answers but should challenge the creative mental powers of children. Films promote a positive influence upon academic motivation.

Were the physical conditions under which the film was shown of a satisfactory standard ? Considering physical shortcomings as important environmental factors, was every effort made to provide a physically-desirable learning situation ?

Whether in classroom, combined classroom or auditorium there must be some minimum standards for film viewing among primary school children. These standards will certainly come into play on the effectiveness of teaching and learning. Consideration must be given to acoustics, ventilation, light control, room capacity and the general physical environment.

Did the film meet the objectives of teacher and pupil ?

As more films are produced and become

available, teachers can become increasingly selective. They can choose the best film for the situation. The teacher's objective and pupils' objectives can best be met by stating what is expected and then testing the results of film showing to discover how well the film met these objectives.

Did the film satisfy production standards as to running-time, effectiveness and artistry, technical quality, age of actors, colour vs black and white, sound and modernity ?

No set of criteria for film evaluation would be complete without serious consideration of technical quality and other production questions. These questions of technical excellence and accepted running-time for various grades will, in a large measure, determine film effectiveness. Children are sensitive to the proper age of other children in films. Today nearly 80 per cent of all advertising and public relations motion pictures are produced in colour. This perhaps has some implications for instructional films. These questions, aside from film content, must be taken into full consideration as contributing factors to effective learning.

Results of educational film research

Measuring the results of educational film use among primary school children is perhaps difficult but is surely most challenging and interesting. Effective research which should be done with children must utilize devious methods of arriving at some semblance of scientific results because of the inability of small children to articulate. Let us look at some of the alternatives available in measuring results :

(1) Observation. Observing children during a film showing will indicate to the observer the degree of interest to the learners. In a recent research experiment it was discovered that often adults cannot predict the reaction of children to films. However, this is one method of measuring results of film use with primary school children.

(2) Questions. A set of honest, unsophisticated, understandable questions will serve as still another means of measuring results of film use. Such questions must employ a degree of understanding of child psychology and of human growth and development. Questions as to whom the children liked most in the films, if they got certain ideas from the film, what was it about, what happened in the film that they did not like, should be followed by such specific questions dealing with film content as, how do you brush your teeth ?, etc. Putting together the answers to these questions, the teacher may analyse the effectiveness of film use on attitudes and behaviour.

(3) Projected behaviour afterwards. In one experiment where two groups of children were used, one group was shown a film in which the character behaved violently toward an animal. The second group was not shown a film. After the film showing to one group, both groups of small children were put into a room with toy animals. Children of the film group began immediately to knock the stuffing out of the toy animals in the room. Other children were not concerned with the action nor did they display any evidence of violence.

(4) Interest tests. Perhaps one of the most satisfactory means of measuring the effectiveness of films is to use the interest test. At one point in the showing the film is turned off and the children are asked if they would like to see the remainder of the film or pursue some other type of activity. If they want to see the remainder of the film, there is good evidence that the results will prove effective.

(5) Retention test. Testing the memory after a certain time elapses is still another means of measuring the results of film use. Research has proven that things learned through audio-visual means are retained longer in the memory than those not learned by audio-visual methods. Testing retention is mainly an academic measurement and inherent in such measurement will be some evidence of changed behaviour or attitudes.

After World War II, 65 research studies were made in one research programme in the United States. The main body of these research studies consisted of experimental analyses of various film techniques to determine whether or not they contributed to learning. For example, researchers wanted to experiment with the value of taking notes during viewing of a film. It was found that the students who took notes during a film showing learned and retained appreciably less than those who did not take notes. It was quite apparent that the motion picture has such a compact, condensed, fast-moving body of content that students who took notes missed some important material while they were not looking at the screen or were concentrating on the current narration.

Another popular notion, that 10 minutes is the desired length for a classroom film for primary school children, was discounted in this series of experiments. Results show that the rate of absorption of facts goes down after ten minutes but students continue to learn from a film for periods even as long as one hour. However, because of the many other factors involved in the organization of school life, it is still not recommended that long films be used in the primary school programme.

Other findings were equally eye-openers as to what we often had assumed about films. One experiment was with a group of ninth grade science students who were shown a series of 44 films. During this semester course they had no teaching from a classroom teacher. Another group was taught by a regular teacher using these films and study guides associated with them. A third group had regular classroom instruction with no films at all. At the end of the semester there were no significant differences in learning among the three groups. Apparently the classroom teacher was not essential to imparting the kind of information which the films were able to give.

Neither time nor space permits elaboration on the amount of research engaged in by using the instructional film in the primary school. The excerpt listed below is another result of research with primary school children:

The usefulness of the 16 mm. sound motion picture film in assisting in improving reading was measured in 1952-1953 by Paul Witty, James Fitzwater, and Harriet Ferman. Their study, which tested the influence of eight selected sound films on the reading ability of second-grade children, showed that 95 per cent wanted to continue the work with films. When these findings were checked against the judgement of participating teachers, the results showed that children learned to read faster, class discussions improved, independent reading increased and vocabulary, the key to success in reading, was increased. (Paul Witty and James P. Fitzwater "An experiment with films, film readers and magnetic sound tract projector". Elementary English. April 1953, pp. 232-241).

Instructional materials research has been conducted over the years, but it can be stated with no reservations that the emphasis in communications media research has been mainly in films. In briefly reviewing some results of educational film research let us examine four major categories: knowledge of facts; perceptual-motor skills; concepts; and motivation, interests, attitudes and opinions.

(1) Knowledge of facts

The evidence clearly supports the conclusion that films can teach factual information effectively over a wide range of subject-matter, ages, abilities, and conditions of use. In early studies, Arnspiger, Consitt, Holaday and Stoddard, Knowlton and Tilton, Merchant, Watkins, Weber and Wise demonstrated the effectiveness of films in teaching factual information. In more recent studies, Hovland and others showed that films had considerable influence on increasing factual knowledge.

(2) Perceptual-motor skills

There is little doubt about the effectiveness of films in teaching perceptual-motor skills. Studies by McClusky and McClusky in teaching the construction of a reed mat and a posterboard box; Freeman and others in teaching handwriting performance and position; and those by Brown and Massersmith, Lockhart, and Priebe and Burton in teaching athletic skills, demonstrated that instruction by film was at least as effective as by conventional methods.

(3) Concepts

Rulon compared the learning from eight films in Grade VIII general science as it related to the learning of pure "rote" items and so-called "educative" items which required the application of a concept or the inferring of one fact from another. He found that when films were added to instruction with textbooks alone, the educative items were learned significantly better than the rote items as measured by both an immediate learning test and a retention test administered three and one-half months later.

(4) Motivation, interests, attitudes and opinions

Considerable attention has been given to the study of motivation, interests, attitudes and opinions modified by films. In general it might be concluded that films can modify motivation, interests, attitudes, and opinions if they are designed to stimulate or reinforce existing beliefs of the audience.

Consitt and Wood and Freeman found that films increased student interest, and Knowlton and Tilton found they increased classroom participation and voluntary reading. There was evidence, therefore, that films did exert a positive influence upon academic motivation. However, the intensive studies by Hovland and others into the influence of the Army's orientation film programme in motivating soldiers to serve in the Army and to desire to fight the enemy show that little, if any, change in motivation was made.

Kishler studied the effect that audience attitude toward and audience identification with the main character of a film had upon learning. Using the dramatic film, "Keys of the Kingdom", whose starring rôle is that of a Catholic priest, Kishler found that the film had more effect upon the tolerance attitude of those who originally held the rôle of Catholic priest in high regard than upon those who held it in low regard. McFarlane found that the use of a number of films relating to cultural groups failed to produce any significant attitude change toward other races in eight- and nine-year-old Scottish children. However, the results suggest that "story" films might be better for developing attitudes than "non-story" films.

There is no evidence that a film is superior to other media of communication in influencing general attitudes. The effect of films appears rather to be specific. It appears also that the cumulative effect of more than one film on the same theme may be needed for any lasting attitudinal changes or reinforcements to take place.

In the final analysis, testing films through actual use will provide the only valid evaluation of instructional films. Classroom teachers are the final judges and they may provide a great service by recording their evaluations. These evaluations should be filed and used to benefit other teachers at a future date, especially new teachers coming into the teaching field. Such evaluation documents should record the interest of pupils in ideas and information presented, whether critical thinking was encouraged, whether the film brought about satisfactory results, facilitated specific skills, attitudes, or appreciations and whether the film presented any new information, and still later, testing to determine whether retention of the learning had been significant.

Evaluation should be a continuous process. It should involve the learner, the teacher and certainly the content of the teaching tool. Those who attempt to evaluate the results of instructional films in primary schools should know some techniques of film research and criteria for evaluating the film as an entity in itself. The evaluator should be familiar with some of the results of extensive research conducted with the use of films and should, on the basis of these results, develop sound educational practices in using and evaluating instructional films.

Only through scientific investigation of how, when, and where to use films, what kind of films to use, and the careful measurement of results, will we promote better film production for elementary schools throughout the world.

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